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THE CINCINNATI

LANCET AND OBSERVER.

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THE CINCINNATI

LANCET AND OBSERVER,

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

Vol. XX.—JANUARY, 1877.—No. 1.

Original Communications.

Article 1.—Epilepsy—Trephining.

A paper read before the Dubois County Medical Society by
M. KEMPF, M. D., Ferdinand, Ind.

IN the fall of 1875, I was consulted by Edward Southwood, who was afflicted with epilepsy. The history of the case is as follows: In 1873 he was attacked with epileptic fits, not in the mild form usually noticed when they first appear, but the convulsions were of a violent character. The attacks came on, about once every week, or once every two weeks; then there would be a cessation of them for several months; this was perhaps due to the remedial influence of bromide of potash. I could ascertain neither an eccentric, nor a centric exciting cause of the disease. The boy's head was well formed and of a good size, and he was healthy in all respects excepting epilepsy.

John A. Southwood, the patient's brother, had been under my treatment two years previously—1872—for epilepsy. Before consulting me he had fits off-and-on, for a year. He had taken bromide of potash. I put him on the atropine and bromide of potash treatment. Indian hemp was now and then used in place of the atropine. I enjoined him to control his passions and restricted him to proper diet. The cure is permanent, he not having another epileptic attack up to this date, Oct, the 9th., 1876. Was the epilepsy of John and of Edward Southwood a coincidence, or does it denote an epileptic heredity in the Southwood family? No malformation, either of the head or any other part of the body, inclined me to believe the latter.

In the case of Edward Southwood the first examination was not as perfect as it should have been, owing to the patient's and his brother's neglect of giving a proper explanation. Thinking that over-excitement of the nervous system, on account of the very irritable character of the patient, and perhaps, the pernicious habit of onanism, were the roots of the evil. I insisted on the boy's trying to control his passions as much as possible. He was placed on the following treatment:

℞	Bromide of potash,	℥j.
	Atropine, sulph.,	gr. j.
	Water,	℥viij.
M.		

Dose, a large tablespoonful three times a day, to be taken previous to the time when the epileptic fits would generally make their appearance.

℞	Bromide of potash,	℥j.
	Ext. Indian hemp,*	℈j.
	Water,	℥viij.
M.		

Dose, a large tablespoonful three times a day, to be taken generally during the intervals of the epileptic attacks.

The bowels were kept open with laxatives, and the patient was restricted mainly to a vegetable diet.

In April, 1876, the boy again consulted me and reported the following, relative to the treatment I had put him on, and its effect. For very near six months he had been free from his attacks, but lately the medicines seemed to have lost all effect. He was accompanied this time by Mr. Edwards, a very intelligent gentleman, who gave me the following history of the case.

When Edward Southwood was three years old, he was struck on the head with the sharp edge of an axe, causing a compound fracture of the skull. Three weeks after the boy's injury, two pieces of bone were removed by his mother; one of these, was an inch in length. When the boy had reached his fourteenth year, he was attacked with epilepsy.

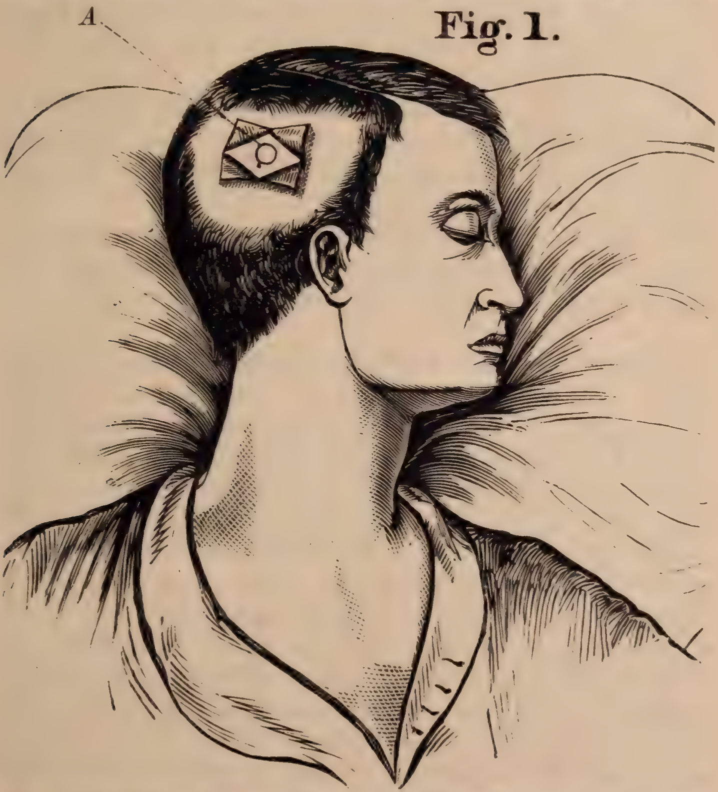
---

* The extract was first dissolved in glycerine and alcohol.

I made a thorough examination of the patient's head, and found a scar, situated near the upper posterior angle of the right parietal bone. I was now convinced that the exciting cause of epilepsy was centric, the injured skull the focus whence it proceeded, and accordingly advised trephining.

The operation was agreed to by the patient's parents and by the patient himself. Accordingly, May the 4th., with the assistance of Dr. Knapp, the patient being put under the influence of chloroform, at 3 o'clock, P. M., the following operation was performed.

Fig. 1.



A crucial incision was made over the injured part, (see diagram No. 1.) and, with a trephine, a button of bone, (*A*) one inch in diameter, was removed from the skull, at the upper posterior angle of the incision, by myself. Being convinced that there was still some diseased bone left, on the internal table of the skull, as ascertained with the index finger, Dr. Knapp removed another button.

Fig. 2.

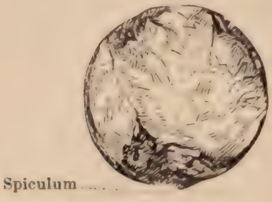
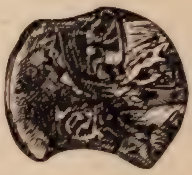


Fig. 3.



On the internal surface, at the anterior edge of the disk of bone, first removed, there exists a sharp spiculum or exostosis (see diagram No. 2.) The internal surface of disk (No. 3.) is almost entirely covered with exostoses.

The membranes of the brain were ulcerated, and a portion of the brain-substance, as large as a hazel nut, was in a state of red softening, and adherent to the exostoses of that portion of the skull which was last removed with the trephine.

The flaps were replaced and their angle united by an interrupted suture. One fourth of a grain of morphine and fifteen grains of bromide of potash were given to the patient. He rested well during the night.

May 5th., at 8 o'clock A. M., Dr. Knapp and myself visited the patient. We found his pulse 100, and rather irritable; his pupils were sluggish: the patient was perfectly rational. The bowels acted three times during the night, and he vomited once. Ten grains of bromide of potash and seven drops of tincture of aconite root were ordered every four hours; the tincture to be increased two or three drops every successive dose. At 2 o'clock, P. M., the patient felt like having an epileptic attack, this, however soon passed off. At 8 o'clock, P. M., Dr. Knapp visited the patient and found his pulse 82, his temperature 101½°. Four doses of the bromide of potash and tincture of aconite had been given. The medicine produced considerable nausea, and was therefore discontinued for some time.

May 6th., at 8 o'clock, A. M., the patient's pulse was 76 and his temperature 101°, appetite good, patient rational and his pupils normal. He slept well during the night.

May 7th., at 8 o'clock, A. M., the patient's pulse was 76 and temperature 100°. He had rested well during the night and was perfectly rational. He had taken one dose of the bromide of potash and tincture of aconite in the morning at 3 o'clock. At 8 o'clock., P. M., his pulse was 66 and his temperature 100°. One dose of the foregoing mixture had been taken four hours previously.

May 8th., at 8 o'clock, A. M., the patient's pulse was 74 and his temperature 100°. The sutures were removed to-day. Several doses of bromide of potash and tincture of aconite had been given.

May 9th., at 8 o'clock, A. M., his pulse was 100, his temperature 103°, and his pupils responded well to the influence of light. At 8 o'clock, P. M., his pulse was 96, temperature 104°. Three doses of the bromide of potash and tincture of aconite had been given.

During all this time the patient was restricted to a pint of milk daily, and his thirst was allayed with small pieces of ice.

May 10th., at 8 o'clock, A. M., the patient's pulse was 94 and his temperature 103°. In the afternoon he was about the same. He took two doses of the usual mixture.

May 11th., the patient's pulse and temperature were normal, and his condition in all respects favorable, excepting a slight protrusion of the brain, where the last disk of bone had been removed; this was confined with the oiled silk and a bandage. Chicken-broth, farina and milk were allowed to the patient. From this day on the patient steadily improved and on the 17th. of May, he left for home,—the distance of which from Ferdinand is eighteen miles.

The following letters give the condition of Edward Southwood up to August.

TROY, IND., May 22nd, 1876.

Dr. M. Kempf, Sir: My son is doing very well; his head is healing fast. If you think it is necessary please send me more oiled silk to dress his head. He says he will come to see you as soon as he is able. Please let us know what is necessary for us to do.

REBECCA SOUTHWOOD.

TROY, IND., July the 4th., 1876.

Dr. Kempf, Sir: According to promise I will let you know how my son is getting on. His head is healed up and he is able to go anywhere. He kills squirrels and goes in the sun all day long; he has not had a fit since we left for home. We join in sending our best wishes and thanks to you. We expect to see you this fall.

Yours etc.,

REBECCA SOUTHWOOD.

TROY, IND., July the 30th., 1876.

Dr. M. Kempf, Sir: I take pleasure in answering your kind letter of the 26th., inst, which I received a few days ago. I'm very sorry to inform you that my son had one slight fit on the night of the 25th. inst. It was very light and I thought it was caused by over-excitement through heat and walking. He walked about ten miles that day. He has not shown any symptoms of a fit since that. His health is good at present.

Yours etc.,

REBECCA SOUTHWOOD.

On Oct. 4th., Edward Southwood called on me. He says that about the middle of August he had a slight epileptic fit, and another about the middle of September. Both attacks were at night. The head is healed, and there is neither an undue depression nor a prominence of the integument covering the place where the skull was trephined. The boy's health is good and he thinks his mind is better now than it was before the operation.

TROY, IND., Nov. 16th, 1876.

Dr. Kempf, Sir: I am getting along well at present. I have had no fit since the middle part of September.

Yours,

EDWARD SOUTHWOOD.

It would be of interest in the pathology of epilepsy, depending on a centric exciting cause, if, in those cases in which trephining has been performed, the operator were to give the precise seat and condition of the lesion of meninges and brain on which epilepsy is supposed to have been dependent; also, to watch or to instruct an intelligent nurse, if his presence is not always possible, to observe the appearance of the brain, should an attack of epilepsy afflict the patient after the operation. In the case of E. Southwood I instructed the mother of the boy closely to observe, should her son be so unfortunate as to have another epileptic seizure, whether the brain bulged out of the apertures made by the trephine or retracted within the wound. On the second day after the operation I was informed by the mother of the boy, that he felt like having an epileptic attack and that the brain bulged considerably through the skull;—as to the color she could make no distinction.

True, this would not explain the true cause of epilepsy, still it may throw some light on the condition of the brain during an epileptic attack.

Now, in epilepsy we suppose that there exists a peculiar lesion, derangement, or irritation of the nerve matter of the encephalon, especially, the medulla in which certain exciting causes produce epileptic convulsions. Of the derangement of this nerve lesion or molecular derangement, nothing positive is known. Some of the exciting causes we know and have classed them into centric and eccentric.

Now, in convulsions the nerve centres are either in an anæmic condition, as the majority of our pathologists hold is the case in epilepsy, or they are intoxicated with albuminuria, cholesterin or other deliterious substances.

But, too, we have convulsions produced by an augmented flow of arterial blood; thus, in the first stage of cerebro-spinal meningitis we have violent convulsions, simulating in some instances in girls hysterical convulsions, so much as even to deceive physicians. This, I think, will be vouched for by many physicians who have witnessed an epidemic of cerebro-spinal meningitis.

That the old adage, "*ubi irritatio, ibi fluxus*," also holds good in epilepsy, and that we may suppose that there is an increased flow of blood to the encephalon, especially to the medulla oblongata—though this may be preceded by a momentary anæmia of the brain produced by spasms of the heart (epileptic aura?) or, capillary vessels of the brain, as held by our authorities—and that this blood congestion in the encephalon is of a venous nature, on account of the imperfect respiratory process,—I think the epileptic convulsions and coma indicate, and are vouched for by morbid anatomy.

Thus an eminent authority says: "At the height of epileptiform paroxysm, the pulse is usually full, strong and frequent because the arteries are then found laboring under a load of *black* blood, as they are found to labor in suffocation, and not because these vessels are then receiving an increased supply of red blood." Another authority claims that the morbid anatomy of the epileptic's brain, shows that the arterioles and capillaries of the medulla are dilated, and their walls thickened.

If the red corpuscles are the little chemists (like the chlorophyle cells in plants) through which digestion and assimilation are produced, may we not suppose that they are the God-endowed factors through which the brain produces the work of the mind, and to whose mandates the voluntary muscles yield obeisance. If the amount of red corpuscles going to the brain, be accelerated, we may have augmentation of the mental faculties; but if this be too long continued, we may have the first symptoms of pathological action (inflammation,) pain, delirium and incontrollable action of the voluntary muscles (convulsions). Now, if uræmic and other intoxications so viciate the blood as to cause convulsions, may we not surmise that, in a peculiar molecular derangement of nerve-matter of the medulla, especially that in connection with the eighth pair of nerves, intoxication of the brain substance with blood surcharged with carbonic acid, may be the principal cause of epileptic convulsions, as it assuredly is of epileptic coma. At least Schrœder Van Der Kolk's observation in the morbid anatomy of the epileptic's brain, indicates this idea. True, the majority of our authorities in pathology hold that the brain in an epileptic attack is in an anæmic condition.

Does our practice agree with this teaching? Bromide of potash is a powerful sedative, highly recommended in all brain affections, accompanied with congestion; the practice being based upon the idea that the medicine constricts the capillary vessels. True, in epilepsy we restrict the patient to vegetable diet, and we give iron and tonics, and build up the system, only when the patient is greatly debilitated; knowing that in anæmia, an organ, especialy the brain, may be liable to suffer congestion from irritation and irregular heart-action when there is a morbid predisposition to some specific disease.

The opportunities of the author of this paper have not been so numerous or complete as those of physicians who are more favorably situated to observe epileptics, still as he had the fortune to operate on E. Southwood, he thinks that the foregoing remarks may not be amiss as they may induce some of those whose position and talents give them opportunities to examine epileptics either with the ophthalmoscope during or after an epileptic fit, or with a scalpel and microscope the morbid anatomy of the brain of deceased epileptics, so that we may perhaps make our treatment depend on a rational pathology and not on a contradiction. True, we may claim that the brómide of potash is a great nerve-calmer, and on this depends its success in the treatment of epilepsy, still if we maintain that the remedial influence of the bromide of potash depends on constricting the capillaries of the brain, and if anæmia is the cause of epilepsy—I can not see how it can effect a permanent cure.

Art. 2.--Clinical cases of Hydroadipsia. With some facts concerning the Water Supply of living Bodies.

By Z. COLLINS, McELROY, M. D., Zanesville, O. Physician to the Muskingum County Infirmary, Fellow of Zanesville Academy of Medicine, and of the Meigs and Mason's Academy of Medicine, Member of the Perry County, Muskingum County, and Licking County Medical Societies, etc., etc.

Reported at session of the Muskingum County Medical Society, Sept. 14th, 1876.

In the prosecution of my inquiries in regard to the quanity of water drank in a given time by single individuals, I visited the Zanesville Glass Factories. In the window-glass department I learned that the blowers work between two furnaces, a melting and heating furnace; that in the warmest weather the principal blowers drank from fifty to sixty pints of ice water, each, in nine hours, the time usually occupied in blowing out a "melt." That the weight of glass blown averages four hundred pounds per hour, during seven hours, the remaining two hours being occupied in "splitting cylinders," etc. Some of the men will drink during the same time from one to three pints of beer, or an equivalent of spirits, in addition to their fifty to sixty pints of ice water, per nine hours. In the winter the consumption of water, per man, falls down to from twenty to twenty-five pints. The amount drank, per man, follows the external temperature very closely. I ascertained that the amount excreted by the kidneys was not perceptibly increased, nor was the color perceptibly changed by their increased consumption of water during working hours. Nor do the excreta from the bowels increase during their working hours when using such large quantities of water. When off work they do not drink more than three or four pints of water each in the whole twenty-four hours. And they do not eat more food at work than when lying idle.

The water drank at work is mostly eliminated at the cutaneous surfaces by sweating; perhaps some at the lungs, but certainly no considerable portion finds exit at the kidneys.

The foreman, from whom I mainly gathered these facts, is a man weighing not far from a hundred and fifty pounds, looks pale after quitting work and getting on his clothing, for they work nearly naked in hot weather. They do not wear anything but pants, or drawers, and shoes, while at work; the shoes to protect their feet.

Perhaps the men, blowers and helpers, will hardly average in weight one hundred and fifty pounds per man. But take it at that, and it will be seen that they drink inside of three days, water equal in weight to that of their bodies.

Occasionally a man gets what they call "blown up with water;" that is, ceases sweating, and quickly becomes utterly helpless, and has to be carried out. They restore the sweating process by rubbing him briskly. As soon as the sweating process is restored he can go right to work again.

The men occasionally lose the sense of thirst—Hydroadipsia—in which condition they cannot continue work. To recall the sense of thirst they throw salt in their mouths, and chew and swallow it. When the sense of thirst returns, they resume work.

At the Ohio Iron Works, Rolling Mill department, the manager informed me that at the puddling furnaces, the men worked in front of the fires, the other side being open to the weather, in summer and winter; and, like the glass men, wore only pants and shoes. Those at the rolls, cutting and piling muck bar, shearing, etc. work differently, generally wore flannel shirts, pants, and shoes, and were not exposed to the same degree of heat as those at the boiling furnaces. That a "set" of men and boys, numbering one hundred and fifty, drink in hot weather from ten to twelve barrels, of from forty to fifty gallons each, of well, or spring water, in ten hours. Some years, when ice can be had, the men are supplied with ice water; and he thinks they do better on ice water, than when using that drawn from the well. Thinks there is less sickness among the men when they use ice water. Certainly less bowel complaint, and cramps, etc. In the winter, or cold weather, as at the glass factories, the consumption of water falls off one half at least. The consumption of water at the Iron Works, per man and boy, per ten hours, averages something over twenty pints. Those at the boiling furnaces running up as high as thirty pints per man.

Men who do not drink these quantities of water, at both Glass and Iron Works, soon fail in their work. It seems that this quantity is about what is required, per man, to enable them to do their work in the time allotted by the managers. At the Blast Furnace, the manager could give me no exact information, as the men drank from a pump; but knew the quantity was large, as it seemed to him they were at the pump every few minutes. *Per contra.* The manager of a Rolling Mill at Columbus, O., who was in the office of the Blast Furnace at the time of my visit, informed me that he had two men in his mill—boiler and helper—exposed to high heat, who drank very little water, not more than a quart in twelve hours.

They were exceptionally good hands, and very moderate in everything. They were both religious enthusiasts, and drank by rule at stated intervals. Other men in the mill drank about as they did in the Iron Company's work.

These are certainly surprising results. Even the foremen and managers at the works were astonished at the quantity drank when attention was called to it. It is an every day affair with them, and they never had had attention drawn to it particularly before my visit. In my own person I kept as accurate an account as I could of the amount of fluid I drank on the twenty-eighth day of June, 1876. Counting from morning to morning, of water, milk, tea, and coffee, ten pints were consumed. Like the men at the Glass and Iron Works, I found my thirst for water followed the external temperature very closely. But I never pass a day, warm or cold, without drinking more or less water. Never drink spirits of any kind whatever.

Inquiries of individuals in health nearly always elicits the fact that they drink more or less water. Amongst a certain number there is a prevalent belief that it is injurious to drink water at meals, founded on statements to that effect they have read in newspapers, copied generally from some quasi medical journal of health.

Among invalids I rarely find a water drinker. Here are two clinical cases, the first a typical case of simple hydroadipsia; the second a complicated case, with hydroadipsia as its central defect. Both these parties have been heard from not three days since (Nov. 28, 1876.) Both are in fair health, and attending to ordinary duties daily.

J. D. aged 68, German, 35 years in Muskingum County. Is a blacksmith by trade, at which he worked steadily the first twenty years of his residence here. For the last fifteen years has resided on a farm in Wayne township.

Is rather slight in build, and never has been robust. Is perhaps, what would be called dull, that is, intellection is a slow process, never responds to a question promptly. Has, during a portion of his residence in the city, been a moderate beer drinker. Seldom tastes it now. In fact, seldom comes to the city. His health failed him very much about his 60th year; seemed to recover under the use the use of hard cider, with iron in it. Did not like the looks of it, thought it looked too much like ink, but was convinced that it did him good, and so continued to use it and recovered a fair measure of health. Has for several years lost entirely the sensation of thirst for water, and has very rarely drank it.

Monday May 15th, 1875. Mr. D. is in extremely poor health, and has been for several months. Is dull, stupid, listless, eats very little, and what he does hurts him. Has not tasted water, as water, for many months, drinks a little tea and coffee at meals, but never anything between meals. Does not rise till about ten o'clock A. M. Has no pain, except such as he attributes to food, in the region of the stomach. Sleeps tolerably well, does not get up at night oftener than once to void water. It is always scanty, high colored, and deposits a dense sediment when he passes it in a night vessel. Is sallow, shrunken, cadaverous, thin in flesh, and complains of great weakness. Is giddy when he attempts to walk. Bowels fairly regular, excreta small in quantity, and the feces dry and hard. Pulse very small and corded, flesh chilly and almost lifeless, temperature not taken, has no cough, cannot use tobacco, though accustomed to do so from early life, mainly smoking.

In critically studying his case I could not see that he had any organic changes of structure not incident to his time of life. The giddiness when walking, to be sure, pointed to considerable changes of structure in the brain and cord. But he had fair sight, and could read common print with 18 in. focus glasses, though he reads but little; takes no interest in newspapers, and confines his reading mainly to his catholic prayer book. He has not been to the city for six months, though living only seven miles from town.

A most carful scrutiny of his case convinced me he was a true hydroadipsiac, and that his physical condition was mainly to be attributed to defective water supply of his body, on his part. I based my prescription on that pathology, and asked him to take milk, mainly, one and a half to two pints at a meal, to be placed before him boiling. To make it palatable, he was to add half a teaspoonful of common salt to each pint, with black pepper, and bread, plain or toasted. When he felt like it he could take boiling water, made palatable with salt, and sipped from a tablespoon, blowing each spoonful with his mouth so that it would not scald him. After this was taken he might have almost anything else he desired at meals. He was to drink cold water with bi. carb. potass. in it, if he had pain, or wind in the stomach, after his meals. In addition to this, I prescribed a weak solution of Per Chloride of Iron, with Tinct. of Capsicum and Chlorate of Potassa, after meals.

May 22nd, Mr. D. is up, and is very much better, skin has lost its sallow hue to a large extent; is full, and soft, and not in wrinkles, as a week since. Passes water in much larger volume, takes his milk regularly, thinks it very good, has no pain after meals now; pulse full, soft, and regular, though slow. Talks promptly, sleeps well, and has less giddiness, though still some. Is in fact a new man.

He got into my carriage and rode with me to a neighbors, something over two miles. Enjoyed his ride, and as it was dinner time, we had dinner at his neighbors, he sipping nearly three pints of boiling milk with pepper and salt in it. After that he had some ham, and eat an egg. After dinner he put on his hat, walked out, and lit his pipe, and had a smoke, and said it seemed just like it used to, years ago, when he enjoyed it so much.

He was to continue his milk diet, or broth, and water; and medicine occasionally.

I think this a typical case of hydroadipsia—less of the sensation of water thirst. In his recovery, I give the medicine very little credit, but think the saturation of his body with fluids the real agency which in a week, worked such a change in his physical condition. If he keeps up a proper water supply for his body long enough to change his structures, and give exit to the bulk of the dead matter in it, he will be as well as he has been at any time for twenty years past.

I had requested him, in case he failed to sleep any night, or was restless, or "nervous" as it is sometimes called, he should sip a pint of boiling water. This happened the very first night after my first visit. He sipped the water, and as he expressed it, felt well, and soon went to sleep, and had a good nights rest

May 25th, 1876. Mrs. D. aged 50, widow; earns her living by working for ready-made clothiers. Has been sick for a month past, attended by two physicians of her own choice. She comes under my professional care as an out patient of the City Infirmary.

Inquiry elicits that she has been suffering with pain in the head nearly all the time she has been sick; at times she has paroxysms of terrible severity, with remissions of uncertain duration; but is almost never entirely free from it; goes to sleep, when she does sleep, with it, and wakes up with it, She is, and has been, sick at stomach, most of the time. Has no appetite, but eats, from a sense of duty a little bread and butter, which hurts her every time after eating it. Never drinks any water, either at, or between meals. Drinks some tea, perhaps a pint in 24 hours, which is all the fluid she takes. Has no thirst for water, and has not had for several years. Passes very little water from the bladder, and not oftener than twice in 24 hours. It is very high colored, and quickly smells bad. Is very pale and pasty in her complexion. Has not slept any that she is aware of for several nights. Does not sit up any. Pulse about 108, very small, thready, and weak. Temperature 100°.

Has taken medicine all the time she has been sick; has been blistered at nape of neck; does not know what medicine she has been taking. Says the physicians who have been attending her tell her she has softening of the brain. She does not expect to get well, but desires to have some relief from her suffering while she does live. Her tongue is heavily laden with fur.

With the condition of things in this woman's body, partly disclosed by her own statements, what is my duty as a physician? Am I to try to merge the phenomena into some "Disease" by name, and then, like my predecessors, prescribe for, or treat it? It may be, but that is not what I shall do. She is dry, shrivelled, and pinched up on the exterior. No process of her body is being performed as it would be in health. No appetite, no thirst for fluids, no sleep. My first duty, it seems to me, is to get her to sleep, and for that purpose she is to take chloral hydrat. and bromide of potash, one drachm chloral, one and one half bromide of potash to an ounce of vehicle, teaspoonful every half hour till asleep, and after, only as needed for that purpose. She is to drink a tea cup full of water, hot as she can take it, made palatable with salt, after each dose of chloral. In the morning she is to take ten drops Fowler's solution, and repeat every six hours. To have milk, hot or cold, or both, for food, and to take three or four pints the next 24 hours. I leave her with the expectation that she will sleep the greater part of the night, and be better tomorrow morning.

May 26th, morning. Patient has not slept any, she says. A two ounce mixture of chloral more than three-fourths gone; has vomited her every time she took it, or swallowed water. Head aching severely, pulse 96. Temperature 98½°. Looks haggard and care worn.

My expectations have not been realized in regard to her condition. She is certainly no better. Inquiry brings to light the fact that she has not passed any water from her bladder during the night, has not, so far as she can remember, passed any for two days and nights. Has no desire to pass any now. Function the expression of the condition of structure behind it. The total suppression of urine is not present without adequate cause. What is it? Does it depend on structural changes in the kidneys? This is not probable. Much more likely it is due to the utterly inadequate water supply of her body lately. There is probably no softening of the brain, so called; nor any other permanent changes of structure in her body, other than these incident to her age. But physiological decay of the structure is almost suspended. My duty with this understanding of the real condition of things in her body, is to hurry up the rate of waste, and the elimination of effete matter from her body — matter no longer available for the purposes of life.

Therefore, omit, Fowler's solution perscribed last evening; and take a half grain of calomel granule every hour till stomach settles, bowels move, and she passes water. To aid these purposes—waste of existing tissue, which does not now perform physiological duty, and the exit of effected products from her body — she is to drink water as hot as it can be swallowed, sipped from a tablespoon, and made palatable with salt, all she can. May drink in addition cold water, with bi. carb. potassa, teaspoonful to a pint, made palatable with lemon; and if she wants it, plain water sometimes. This she is requested to do, no matter whether it comes back by vomiting or not. She is to try to pass water every hour, and take no food, but may drink some milk.

Evening. Patient no better. Has taken medicine as requested, vomited very frequently, and drinks fluids as prescribed in the morning. Has intense headache. Has passed no water; nor have bowels moved. Is thoroughly disheartened; and friends have arrived from abroad to see her before death.

I feel confident that I am on the right track in regard to her treatment, and so recommended the same through the night that she has had during the day.

May 27th, morning. Patient is better this morning in many respects. Has began to pass water in small quantities from her bladder; and her bowels have moved though not freely. Is still somewhat sick at stomach, but vomits much less frequently. Head aches still, but much less severe than yesterday. Temperature 98½°. Pulse 96, still small and thready.

To continue calomel granules every two hours; to drink hot and cold water, and cold water with bi-carb. potassa. May have milk today.

27th evening. Bowels have moved very freely, and what passes from them is extremely offensive. A large volume of water has passed from her bladder. Stomach still sick, but much less so. Is a good deal warmer to the touch. Pulse slower, not counted; nor temperature taken, because she is so evidently better. No medicine to night, but is to continue drinking water, hot or cold, or both; and drink milk.

28th morning. Bowels continued to move at intervals through the night, and has passed urine largely. Has some headache, and is still more or less sick at stomach. Her pulse fuller and slower, but very soft, and easily obliterated by the pressure of the fingers. She says she is ever so much better. Her most urgent complaint is weakness.

The wasting processes are now as fully active as I could desire.

The condition of debility, as evidenced by the circulation, and her own complaint of weakness, made now for the first time, demands my attention. The indications are now to steady the process of waste, and advance the processes of repair. If I am not mistaken in my judgement, the "stored up force" in opium will relieve the remaining head ache, sick stomach, and give her rest, and restore to her a demand for food—new material. Therefore, of pills of opium and camphor, grs. j and ij., take one every three hours. To take all the food she can, preferably in fluid form of broth, milk, etc., and continue to drink water as water.

28th evening. Much better; less headache and less sick stomach. Kidneys fairly active and bowels quiet. She is to continue pills, if awake, through the night.

29th morning. Has had an uninterrupted night's sleep, and feels better in every way. Pulse fuller and stronger. No head ache, no sick stomach, and begins to relish food. Asks to have solid food, and there being no objection, she may do so.

She is to take pills every 4 hours, and commences with Fowler's solution, 10 drops, 3 times a day.

29th morning. Mrs. D. is again better in every respect this morning. No head ache or sick stomach, and is sitting up in an easy chair. She has a clear complexion, but is very pale. Relishes her food, and she thinks she eats enough.

Pills every 6 hours. Fowler's solution.

30th. Patient sitting up, and gaining strength. Feels well. I explained to her that her sickness was largely due to her not taking water, or fluids, enough to carry on the work of life properly. That if she desired to remain well, she must drink water every day, never less than three pints every 24 hours. She commences work today.

June 12. Mrs. D. called to say that though she was still improving, her feet would swell towards night and hurt her. Her pulse had hardly regained the necessary strength. Tinct. digitalis, 30 drops, three times a day.

I see her through a window almost every day working at her sewing machine. I regard this as a complicated case of hydroadipsia. At my first examination I did not comprehend the extensive damage to structure, mainly owing to the deficiency of water supply. At my second visit I comprehended the whole of the case, having to suspend the accomplishment of my original purpose with chloral and arsenic. After having got up the requisite pace of waste, and eliminated some of the accumulated dead matter in her body, her appetite returned, which means the resumption of repair, and speedily regained more than her usual health for several years past. I certainly succeeded better than my predecessors, both of whom are regarded as good physicians. But they evidently treated her "diseases," while I treated the woman herself; supplied the defects of her body, due mainly to insufficient water supply.

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Art. 3.—Are there one or two Syphilitic Poisons?

A Paper read before the Zanesville Academy of Medicine, by

H. CULBERTSON, M. D., Zanesville, O.

Mr. President & Gentlemen: In this discussion it is my duty to consider the point "are there one or two syphilitic poisons."

When this disease first made its appearance, it was thought to be derived from the stars. Again it was thought to be due to the leprosy, or to filth, to poverty, to debauchery, and to a variety of causes; — or in other words, it was not regarded as a specific disease at that time.

It was reserved for John Hunter to establish the fact of its specific nature, and its propagation, mainly, by sexual intercourse.

Later M. Leon Bassereau, a pupil of the great "unitist" and syphilographer, M. Ricord, claimed that the "hard sore" always produced its like, and his friends, or others showed, that the "soft sore" always gave rise to the "soft sore." He advocated the doctrine of two syphilitic poisons, one general, affecting the entire organism, the other local and not involving the constitution. It was not long until the learned master became a convert to the new doctrine.

But opposition sprang up, and Le Clerc maintained that there was but one syphilitic poison, and inventing the name "chancroid," he held that in it, the virus of syphilis was modified, in passing through the general system of parties who had suffered constitutional syphilis, so as to change it and certain features of the disease. He regarded the soft, as the offspring of the hard sore, and the former related to the latter, as is variola to varioloid.

But still some of the phenomena of syphilis could not be accounted for by the doctrines proposed, and M. Rollet advanced the theory of the "mixed chancre" as a solution for some of the defects of "syphilitic duality."

Lastly, we have the ingenious view of Mr. J. Hutchinson, of London, — see Lancet, Sept. 18th, 1875, — that the "soft sore" is produced from pus-contagion, and which pus has been modified by the syphilitic virus. As we understand him, the true syphilitic virus is changed by a local inflammation, induced by the presence of that poison, and a pus is the product, which developes the "soft sore." He seems also to claim, that if there is present in such a soft sore, any of the "syphilitic matter" unchanged by the influence of the processes going on in the "chancroid" during the development of this pus, that constitutional syphilis may ensue; but if this true virus, unchanged by the soft sore, is absent from the fluids of the "chancroid," general manifestations will not follow, and the local sore can only be produced.

This gentleman also claims, that "tertiary syphilis" is not properly syphilis, but is to be regarded as a sequel of that disease.

During these discussions upon the unity or duality of syphilis, it seems to have been claimed, that, if two sores can be shown to have been engendered, differing in character and associated with syphilis, that therefore the twain cannot be derived from a common cause. On the other hand the "unitists" hold, that, even though it be admitted that "chancres" and "chancroids" are different in character, this would not, alone, prove these sores produced from different causes. As "apropos" to this point, we may mention that the german school regard the Hunterian chancre as but an evidence of syphilis, and style our "chancroid" a "chancre," and do not admit that the "soft sore" is related to syphilis at all.

In the short time allowed, it will not be possible to consider the several doctrines above mentioned; attention is therefore invited to the following propositions:—

1st. The Hunterian chancre is not always inoculable.

This was shown by Henry Lee,—see Am. Ed. Lancet, 1859, vol. 1, p. 285,—who details five cases and reports others in which the secretion from true chancres failed to be inoculated, or to induce "chancroids" in subjects who soon after showed signs of constitutional syphilis. But when these chancres were dressed with sabine ointment, so that a free discharge of pus was induced, the puriform fluid, on being inoculated, developed "chancroids," both in the syphilitic; and in one instance in which the subject had not suffered from constitutional syphilis. And further, inoculation from such an inoculated chancroid, produced likewise a soft sore. Other observers have recorded the same results.

These facts show conclusively that the modification of the secretion of a true chancre may produce a chancroid, or, that the latter may not result from the inoculation; and hence we may infer, that, as in these experiments the syphilitic virus was the foundation of the sore in this instance, that the chancroid is the offspring of the chancre, and is intimately related to the latter, and that the chancroid may be the result of local influences, which change the character of the chancre secretion and possibly modify the syphilitic virus.

We may add here the fact that the cases vaccinated at Rivalta, Italy, were not always accompanied with induration at the seat of vaccination. This is important, for, as the matter with which these children were vaccinated, was derived from a hard sore originally, it would naturally be expected that induration would follow the vaccination; but this, often, was not the case, many of the scars being free from induration, and yet constitutional manifestations followed the latter class of cases, as well as in the examples presenting induration.—Am. Ed. Lancet, Vol. 2, p. 74, 1862.—

2d, The secretions of secondary syphilis, may, or may not be inoculable.

Thus, Dr. Gjör reports three cases in which such efforts failed and were not followed with any constitutional symptoms upon those who were attempted to be inoculated, even when these parties had not previously had syphilis.—Bumstead, p. 47. —On the other hand Cullerier, Melchior, Robert, Diday, Fournier and Caby have each reported a case in which such efforts succeeded in those already syphilized, and on being further transmitted upon sound individuals produced constitutional syphilis. —Bumstead, p, 46.

Other authorities mention similar cases. Thus, three cases are given in Ziemssen's Cyc. vol. 3, by Bäumler, in which similar inoculations were successful. Again, the case cited by Berkely Hall,—Am. Ed. Lancet, p. 442, 1864,—in which a man received a wound, which wound was sucked by another man, the latter of whom had a syphilitic fissure at the corner of his mouth, and thus the former incurred constitutional syphilis.

Again we may refer to the three cases reported by J. A. Marston, in which constitutional syphilis was produced by other means than through the contact of the secretions of primary sores—Am. Ed. Lancet, June, p. 462, 1863.—

In further corroboration of this point, may be mentioned the case reported by M. Trousseau, of a healthy subject, who incurred constitutional syphilis from the vaccine matter containing syphilitic virus. The well known disease which appeared at Rivalta, Italy, affords many examples in point, thus a child is vaccinated and a second child from it, and from the two cases sixty-three examples of syphilitic inoculation resulted, and others followed from these. —Am. Ed. Lancet, Vol. 2, 1862, p. 72, et seq.—

Thus we present numerous cases of constitutional syphilis, induced from the secretions of the blood of those affected with general syphilis. On the other hand these reports show us, that, occasionally, inoculation, with secondary products do not induce syphilis.

3rd. Secondary syphilis may result from the tertiary form.

The case of Sebastian may be instanced here—see Bäumler, Ziemssen's Cyclop., Vol. 3, p. 62—a child is vaccinated, and from this another child, the latter subsequently presented a pseudo chancre and constitutional syphilis, and the former an extensive papular syphilide. It turned out that the father of the first child had condylomata and other manifestations of syphilis, from which his child derived its disease. Again Dr. Eulenberg's cases— A child three months old is vaccinated, apparently healthy, 140 individuals were vaccinated with the lymph from this child, of which 50 became syphilitic the local symptoms appeared in three weeks, the general in from five to six weeks. The child itself, three weeks later, had condylomata. Later, it was learned that the parents were syphilitic.—See Ziem. loc. cit., p. 63.—

Mr. Pollock, in the late discussion on syphilis in the Pathological Society, London, reports a case of a mother, with tertiary syphilis giving birth to a child, which in three weeks developed secondary syphilis.—See Lancet, April 8th, 1876, p. 534.—

Sir John Rose Cormac, reports a case of this description;—see Med. Times and Gazette, Vol. 1, p. 224 & 248, 1875,—in which a child suffered congential syphilis and died, the disease having been contracted from tertiary syphilis in the father.

4th. A chancroid may induce constitutional syphilis.

In this connection, the case of Biddenknap, in which a healthy young woman inoculated herself with matter the result of syphilization, and which was originally derived from an infecting sore; the matter with which she inoculated herself was originally from the secretions of infecting sores, but had passed through many generations and individuals. Pimples resulted immediately, or rather early, and these degenerated into ulcers with and without induration. Later all the sores healed. Later constitutional syphilis resulted.—See Ziem. loc. cit., p. 95.—The case reported by Danielssen is related to this point. A leper, æt. 30, who had never had syphilis, and who had previously been inoculated during five months with matter from soft chancres without constitutional symptoms resulting, was inoculated with matter from a hard chancre, September 25th, which produced chancroids and with the matter from the chancroids he was inoculated until immunity was soon complete, and all the ulcers were healed by the end of October. January 5th, 1858, there is an exanthem upon the scrotum. The begining of February manifest symptoms of constitutional syphilis appear, ulcers in the throat, etc.

J. A. Marston,—see Lancet, Am. Ed. Vol. 1, 1862,—says: "I am positive, that a sore on the sheath of the penis, having all the characteristics of a soft sore, and capable of producing its like by auto-inoculation, may be followed by constitutional affection."

Dr. Kaposi in his late work claims as follows:—1st, soft chancre, with or without suppurating bubo, ends as a rule in a local disease. 2d, the same, with, or without suppurating bubo, is not unfrequently followed by secondary syphilis.—See Am. Jour. Syph. & Derm., October, 1874.

Staff Surgeon Oliver, gives his experience of sixteen years in the army, and says, "the modified form of syphilis, or descent modified syphilis, is in 70, per cent of the "primary syphilis" patients, the form met with; and that not more than 30, per cent of the cases can be considered as true syphilitic chancre, but merely the local evidence of the transmission of secondary syphilis. He adds that, while constitutional evidences will follow the indurated and non-indurated sore, yet the cachexy of syphilis following the non-indurated sore is much less formidable than that following the indurated sore.—See Journal, loc. cit., July, 1874, p. 305.—

Victor De Meric, reports a case in which the husband contracted constitutional syphilis, was married, had nine children,—healthy—the wife showing no signs of syphilis, until, when after many years she contracted it from a soft chancre, during sexual intercourse, and which was located upon the prepuce of her husband. The husband had an impure intercourse, and not seeing anything wrong, in ten days approached his wife, and two days afterward noticed a little irritation of the prepuce, in a few days an ulcer appeared on the mucus membrane of the prepuce, which soon became phagedenic.—See Jour. Syph. & Derm. July, 1874.—

The following is kindly reported to me by Dr. R. M. Dening, of Columbus, O.

An adult man incurred a chancroid ten days after exposure, in

May, 1875. The chancroid was cauterized and healed soon, and he mercurialized himself upon his own responsibility. In March, 1876, excavating ulcers of the tonsils and an eruption upon the surface appeared, and still later an iritis. He recovered under the use of mercury.

The same gentleman reports another case; a healthy man æt. 24 years, contracted a chancre on the prepuce, the size of a three-cent piece.

This was followed with a very large open and suppurating bubo, and the doctor who attended the patient before Dr. Dening, removed one of the glands in the groin -- no internal treatment up to the time Dr. Dening saw the case.—This chancre came out about three weeks after exposure.—Dr. Dening dressed the suppurating bubo with a solution of the potassio-tartrate of iron and gave the same internally with opium and nourishing food. He also strapped down the bubo with adhesive plaster. Very soon the doctor noticed a number of chancroids about the bubo, produced from the plaster adhering to the hairs and drawing them out from the roots, into the follicles of which the matter from the bubo entered, and thus the chancroids; being satisfied of their nature, and as the disease was auto-inoculable, and according to the dual theory he felt certain he had chancroid, he continued the above treatment and destroyed the chancroids by cauterization. In two or three months the patient was out and the large bubo healed. Now comes the sequel. —He had suddenly a perfectly marked syphilitic eruption all over his body.—This was about two months after he first saw him, and about six months and a half after he incurred the disease.

The doctor was prepared to understand how a primary sore might be "mixed" in its character, but could not understand how a suppurating bubo should possess the quality of "mixed" as applied to syphilitic sores. Of one thing he felt certain, the patient had syphilis anyway, so he now gave him the proto-iodide of mercury, under which he was cured and has remained so up to the present time.

If we suppose that the first sore was a true "chancre," then the constitutional symptoms must have manifested themselves very late in the history of the case, i. e.— In near seven months from exposure. Such late developement we know does occur, but as these phenomena generally appear within two months, it is more probable that the constitutional disease was developed from the chancroids following the bubo, especially as these evidences of the disease developed about two months from the appearance of the bubo-chancroids.

A case occuring in my own practice may be here given:—A healthy man incurred a single chancroid upon the glans penis within five days after exposure; this was the result of one intercourse and he did not have connection with any one after he incurred the sore. This sore was superficial, irregular in its outline, with steep edges, without induration, and had upon its surface a puriform secretion. Regarding it as a chancroid, we gave him a salve of iodoform, under which the sore soon healed; but told him it was not impossible that he might become affected from the sore. He had not had any constitutional treatment. In about two months from the exposure he had a well marked syphilitic eruption with sore throat, which yielded to mercury and iodide of potassa.

My observation both in civil and military practice, teach me that soft sores often are followed with constitutional syphilis, and in conversation with a number of surgeons I learn of their similar experience. It will not do to attempt to account for the poisoning of the system from the "mixed chancre," for there is no evidence of induration, and the local sore is the suppurating, superficial lesion, and moreover it is beyond the "ken" of any one to prove the presence of the matter of "chancre" intermixed with that of the "chancroid."

5th. Infecting syphilitic sore is not uniform in character.

Thus, Dr. Fournier describes, as occurring in women, primary lesions presenting the four following anatomical characters: 1st, the erosive, desquamative chancre, which consists simply in a desquamation, epidermic or epithelial, limiting itself to denude, without destroying the derma.

2d. The exulcerous chancre, that which attacks superficially the derma, which skims over, rather than breaks through it.

3rd. The ulcerous chancre, of a depressed, excavated, jagged aspect, which constitutes, or seems to constitute, an ulcer, for most often the ulceration takes place by means of its neoplasm, and does not involve normal tissues.

4th. The flat papulous chancre, which, elevated above the integument, bulging, protuberant, resembles a sort of small disk or papule, precisely analogous to the secondary papule. Dr. Dubec, adds another form of local sore, or rather primary sore, attended with constitutional symptoms, called the "multiple herpetiform syphilitic chancre," and describes five cases occurring in men. These sores are multiple, epithelial erosions, becoming later slightly prominent, under the form of mucous papules, at the moment when cicatrization is about to begin. — See Jour. Syph. & Derm., July and October.—

Dr. Henry Lee says:—See Braith. Retro., Am. Ed., part 52, p. 162.— In practice we occasionally meet with examples of infecting sores which are non-conformable to the description given of the typical indurated sore such as the following:

1st. An initial lesion consisting of a vesicle which becomes a pustule, then an ulcer like a soft ulcer, but which acquires a specific induration at some stage of its progress, or, 2nd, a patient presents himself with one or several, small ulcers possessing the characters of a local soft sore for some time, but before cicatrization a hardness developes itself at the seat of one of these chancres, the ulcerative action and secretion of pus continuing.

M. Gascoyen, states that at first the Hunterian chancre is without induration, and it is well known, that a soft sore often becomes indurated.

Thus, it will be seen, that it is by no means necessary that, induration, or a sore having peculiar characteristics, should constitute the initial lesion, in order that constitutional syphilis may be engendered. On the contrary we know that the merest abrasion, which may wholly escape the attention of the patient, may be the source of the infection.

6th. Can a chancroid produce a chancre?

On referring to the syphilitic disease as it prevailed at the Rivalta, Italy; we find that the child Manzone (who was vaccinated with matter from the arm of Chiabrera, the latter of whom had indurated sores, the product of constitutional syphilis,) had, at the seat of vaccination a suppurating sore similiar to a chancroid. It should be stated, that of the seven children who were vaccinated from Manzone and took the disease constitutionally, five are known to have had soft sores at the seat of vaccination. — See Am. Ed. Lancet, Vol. 2, 1862, p. 75 and 76. —

Now Antonia Sianca was vaccinated from Manzone's arm, and presented a soft sore; later the mother of Sianca, showed two indurated sores upon her breast, which she incurred from her child in nursing it. Again one of the cases described by Bidenknap, — see Ziem. Cyc. Vol. 3. p. 95—in which a young woman inoculated herself with syphilizing matter which had passed through many generations, two well marked indurated ulcers, and four imperfectly indurated ulcers, followed the inoculations, and subsequently constitutional syphilis resulted.

Again, Prof. Gross says:—See Surgery, Vol. 1, p. 292.—"It is well known, that in some individuals soft chancres produce hard, and hard chancres soft, although as a general law like produces like." Again Mr. J. A. Marston says: "Speaking of a soft sore derived from an indurated sore, "that the virus from such a sore however, may induce the hard sore in a person not previously infected, is nearly proved."—See Am. Ed. Lancet, 1862, Vol. 1, p. 363.—

Again it is well known that, the inoculations from soft sores employed in syphilization, often induce indurated ulcers. Even in the subject being syphilized.

If then a chancre, or, rather the virus from a chancre, may produce a chancroid, and that from the latter may induce the former, these sores must be related, and is it not probable that the same poison therefore, induces either sore.

Bäumler,—see Ziem. Cyc., Vol. 3, p. 88,—in speaking of the "mixed chancre," says, "in another way may the action of both poisons be evinced at the same point of the body," as for instance, when soft chancre "virus is inoculated upon an existing induration (or hard chancre) syphilitic in character. This has been experimentally demonstrated by Laryonne, Basset, Melchior, Robert and others, with positive results." The converse of this, viz: inoculation of syphilitic virus upon a soft chancre, is likewise possible.

Although these examples are put forward as proof of the mixed chancre, the fact that a hard chancre can be made to assume the character of a soft, is rather a proof of their close relationship, than that the two sores depend upon different poisons; is rather an argument that the chancre and the chancroid may be mutually inter-convertable. Were they not so, the virus of the true chancre would maintain its sway, and retain its characteristics.

7th. Those who have had constitutional syphilis may incur it again. The case of Mr. DeMeric is in point; a man contracted syphilis, constitutional, went to West Indies, was gone two years, returned home with the faint brown stains of the disease on his skin, contracted fresh disease, presented two well marked chancres on the glans penis, and in a few weeks there appeared a well marked crop of syphilitic lepra. A similiar case is given by Dr. Diday.—See Am. Ed. Lancet, 1862, Vol. 2, p. 317.—

Again, see the report of cases of syphilitic re-infection reported by G. G. Gascoyen.—Eng. Ed. Lancet, Nov. 28th, 1874.—He reports eleven such cases; in six of these constitutional symptoms resulted, and in four, indurated chancres were the only evidence of contamination. He gives a table of sixty cases of syphilitic re-infection, in most of which mercury had been employed in the treatment of the first attack. Mr. Henry Lee endorsed Mr. Gascoyen's view, and stated he had reported a similiar case. Messrs. Drysdale, Trotter and Myers also believed in syphilitic re-infection.—See Lancet, loc. cit.—

Dr. Köbner—see Jour. Syph. & Derm., p. 137—reports a table of forty-five cases of syphilitic re-infection.

It should be stated, that Ricord himself advocates now that syphilis can be retaken, but still holds that it cannot be retaken so long as the system is under the influence of a given attack. — See his remarks at the meeting of the British Medical Association 1872.—

Huggenberger, Diday, Lindwurm, Bergh, Engelstedt and Björken, have given us cases of syphilitic re-infection.—See Jour. Syph. & Derm. 1873, p. 130.—

If then syphilis may be retaken as may be variola, rubeola and scarlatina, exceptionally, we submit the question: Is not this re-susceptibility an approach to the re-inoculating character of the chancroid? Or in other words, is it not true that the reproductive feature so common to the chancroid is rarely and exceptionally a trait of the chancre? And hence may we not infer the intimate relation of the chancre and the chancroid?

Again, as it is generally true that the constitutional manifestations following syphilitic re-infections are mild in character, is this not an approach to the usual innocence of the chancroids?

The case of M. Bouley—See Vidal Ven. Dis. by Blackman, p. 292, —who succeeded in producing a second syphilitic infection in a woman laboring under tertiary syphilis, is in point here. Vidal is a firm believer in syphilitic re-infection.—See work loc. cit. p. 292.—

8th. The assumption of Hutchinson, that the tertiary form of syphilis is only a sequel of syphilis, and not really the original disease, does not seem to rest on any reliable data.

If, by a sequel, we are to understand the operation of a morbid cause producing an effect differing in character from the original disease, then how can tertiary syphilis be a sequel, since we know that the tertiary form of this disease will give rise to the secondary form of syphilis in offspring. In other words, it does not induce an effect but the original constitutional disease itself.

Having now considered the foregoing propositions we may venture to draw conclusions from the facts before us; in doing this we wish it distinctly understood that we can lay no claim to special skill in the cure of this disease, nor have we that extensive knowledge of the subject of syphilis, which belongs to the masters of this speciality, but we simply present our views as to this affection, based upon authority, and as the malady has seemed to us.

If then the Hunterian chancre is not always inoculable, thus resembling the usual non-inoculability of the soft sore; if the secretions of one affected with secondary syphilis, may be or may not be inoculable, thus again resembling the uninoculability, generally, of the chancroid; if secondary syphilis may result from the tertiary form; if a "chancroid" may induce constitutional syphilis; if the infecting sore is not uniform in character; if a chancroid may engender a "chancre;" and if constitutional syphilis may be retaken, thus resembling the re-inoculating character of the chancroid; is not the poison which induces the chancre and the chancroid, one and the same?

What is it which induces the soft sore, so constantly in strict relation with sexual intercourse and the phenomena of constitutional syphilis? What poison can it be, other than the syphilitic, which developes a chancroid, by inoculation of the secretions of an irritated hard chancre? What virus can it be other than the syphilitic which to-day brings out a hard and to-morrow a soft sore, for if either may follow the inoculation of the poison, are these sores not dependant upon the same cause?

Why is it, that constitutional manifestations may follow a variety of local lesions, and that even without induration?

Why is it that the "dualists" have been compelled to invoke the aid of the "mixed chancre" to account for the appearance of constitutional symptoms, which so often follow the soft sore?

Is there not to-day a want of confidence in the dual theory, and an evident tendency to syphilitic unity? If this be true, is it not because the dualistic theory has failed clinically?

It scarcely seems, too, that the doctrine of Hutchinson is correct, for he assigns to pus the property of modifying the syphilitic virus, in such a manner as that, the soft sore is generally infecting. As is well known, suppuration is but one of the effects of inflammation going on in this sore, and this gentleman has not shown that, the same kind of a sore cannot be produced by inoculation of the serum of the irritated sore. Further, we know that these soft sores have been produced from vaccination lymph derived from the arms of those who have had constitutional syphilis when vaccinated.

Is it not then more rational to conclude that in these soft sores —chancroids,— some local influence induces a change in the character of the sore, in the whole process of the inflammation going on in the sore, thus modifying the nature of the virus, and causing the sore to differ from the hard chancre.

But, it must be admitted that it is not thoroughly established that the soft sore is constitutionally infecting, although there is strong proof that it occasionally is so. When the affirmative of this point is clearly decided, then will syphilitic unicity receive its greatest support and a dark point in relation to this disease be removed.

The doctrine of "unicity" leads to simplicity, and it certainly is illogical to suppose the existence of two syphilitic poisons, until every argument has been invoked and failed, in behalf of the view, that there is but one such poison.

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Art. 4.—Alcohol.—Its Effects in Health. Its remedial Applications in Disease. Where and when should it be used?

By I. C. KENNEDY, M. D., Batavia, Ohio.

The above questions were presented for discussion to the Clermont County Medical Society at its October meeting, and for want of time was only partially noticed.

We would submit some thoughts to the society to-day, upon the first question, alcohol, its effects in health—is one of the most important subjects in its moral, political, and physiological, that we have to meet with. The history of alcohol dates as far back as the flood by the sacred writer, and is frequently referred to through the Holy Bible. Profane history refers to alcohol as early as Homer, noticing its effects upon the body, and mind. It may be said to be nearly coeval with the history of the human family. It would seem from its extended history both sacred and profane that we should not be in difficulty and doubt about its effects in health. And while some of its most palpable and potent effects are unquestioned, still, there is among laymen and scientists a diversity of opinion in regard to the effects of alcohol in health, that should command our careful attention.

Among the temperance advocates we find that the use of alcohol in health is declared a poison, and an unmitigated evil. And they seem to be satisfied with their proof, sacred, profane, chemical, and physical. The more conservative of the temperance party renounce such sweeping declarations, and seem satisfied with their proof.

While it is not our purpose to investigate, the difference of opinion among laymen, and its cause; it is recognized. While it is true with them, it cannot be claimed as much better among scientists. There is a diversity of opinion (if not of facts) among scientists in regard to the effects of alcohol upon the health of man. We do not perceive any difference among scientists in regard to what is alcohol. It is defined as being a product which results from the vinous fermentation, in substances containing grape sugar, at a temperature of 80° Fahrenheit, the presence of a fermenting body, converts the solution into carbonic acid and alcohol. Its preparation is divided into three stages.

First, the production of a vinous liquor.

Second, distillation producing an ardent spirit.

Third, rectification or purification.

When vegetable substances are placed in contact with air and moisture they undergo that kind of decomposition which is called fermentation. Alcohol is never produced except as a result of decay, or entire chemical change, and is composed of carbon, hydrogen and oxygen. Therefore it belongs to the class of hydro-carbons. The liquids obtained from the various fermentations has received different names, according to the substances from whence it is derived. Where procured from grapes, blackberries, currants, etc., it is called wine; when from malt and hops, ale and beer; from apples, cider; from the distillation of wine we get brandy; from the distillation of fermented infusion of corn or rye we get whiskey. The above embraces enough of that which is indisputable in regard to what is alcohol, for our purpose. As the differences do not occur in what constitutes alcohol, or from what substances it may be obtained, but from its effects upon the human system in health. Its effects have been recognized among men through all time. The sacred writers of the Bible frequently speak of wine and strong drink; and speak of it as exhilerating, stimulating, narcotizing, poisoning.

It is recorded by the sacred writer: "And Noah began to be a husbandman, and he planted a vineyard, and he drank of the wine and was drunken, and he was uncovered within his tent."

"And Abigail came to Nabal, behold he held a feast in his house like the feast of a king, and Nabal's heart was merry within him, for he was very drunken, therefore she told him nothing more until the morning light."

"But it came to pass in the morning when the wine had gone out of Nabal, and his wife had told him these things, that his heart died within him and he became as a stone."

"He causes the grass to grow for the cattle, and herb for the service of man, that he may bring forth food out of the earth, and wine that maketh glad the heart of man."

"And oil to make the face to shine, and bread which strengthens man's heart."

"Give strong drink unto him that is ready to perish, and wine unto those that be of a heavy heart."

"Let him drink and forget his poverty, and remember his misery no more."

"Use a little wine for thy stomach's sake, and thine often infirmities."

"Wine is a mocker, strong drink is raging, and whosoever is deceived thereby is not wise."

"Look not then upon the wine when it is red, when it giveth his color in the cup, when it moveth itself aright."

"And be not drunk with wine when in excess, but be filled with the spirit."

Other instances might be given from the Holy Bible, but we think these are enough to fully establish the position that the sacred writers understood that alcohol, was a stimulant, narcotic poison, and in no instance do we find it regarded as an element of food. Scientists generally regard alcohol as a stimulant, anaesthetic, narcotic poison. It is upon the stimulant effect of alcohol upon man, that the chief or great difference of opinion prevails. As a stimulant, some avering that depression follows in proportion to the exultation. Others denying that there is any depression following the stimulant effect, some contend that there is no food given principle to the blood connected with the use of alcohol, while others as earnestly contend that it is aliment; that man can live upon alcohol. Now, what are the facts, from which such diversity of opinion originates. Surely it cannot be that alcohol has not been in use long enough with the human family to realize, and understand its effects. Probably one difficulty in the way of ascertaining the true effects of small portions of alcohol arises from the fact that it is almost impossible for man to use a small portion. The use of alcohol demands and receives an increase in quantity, thereby going beyond the stimulant and food given principle. But there are some conceded facts such for instance as its local effects, alcohol in a concentrated form is a powerful irritant and caustic poison, to whatever part of the body it is applied. It corrugates the tissues and gives rise to pain, heat, and redness. The effect of alcohol on the animal tissues is to absorb the water from the tissues, and where these are of an albuminous or fibrinous nature, it coagulates the albumen, or fibrin, and increases the density of the solid albumen or fibrin, and a shrinkage of the animal substance.

Probably the next effect of alcohol would be by absorption into the blood vessels. Dr. Percy found that where animals are poisoned by alcohol introduced into the stomach, the coats of that organ become so thoroughly imbued with it throughout their whole thickness that no washing or maceration could remove it. He also found the tissues removed from the stomach impregnated with alcohol. Probably our best information of the effects of alcohol upon the gastric mucous membrane during life is derived from the observations of Dr. Beaumont in the case of Alex. St. Martin. He was temperate and healthy. Occasionally indulged in excess both of eating and drinking, the results of which could be seen by direct observation through the fistulous opening in the wall of the stomach. Dr. Beaumont says: July 28, 1873. St. Martin has been drinking ardent spirits pretty freely for eight or ten days past. Some erythema and apthous patches on the mucous coat of stomach. August 1st, mucous coat of stomach considerable erythema, secretions vitiated. August 3rd, inner membrane of the stomach unusually morbid, erythema more extensive, spots more livid upon the surface, exuded small drops of grumous blood, mucous, covering thicker than common, the secretions much more vitiated, the gastric fluid extracted this morning was mixed with a large portion of thick ropy mucous, and considerable muco-purulent matter, slightly tinged with blood. He complains of no symptoms of general derangement of the system. August 6th, the inner surface of the stomach had recovered its healthy appearance. The patient in the meantime had abstained from all alcoholic liquors Dr. Beaumont further says: "The free use of ardent spirits, wine, beer, or any intoxicating liquor, when continued for some days, has inwardly produced these morbid changes."

Other experimenters on animal tissues all go to confirm the same facts. The effects of alcohol on the blood, besides its influence in coagulating the fibrin of the blood, is certainly worthy of our attention, and is receiving an appreciative attention from scientists. When alcohol is mixed with fresh arterial blood it darkens its color so as to give it a venous aspect, the red corpuscles shrink and a considerable part of their contents become mingled with the liquor sanguinis.

Among the first effects of alcohol taken into the stomach is an increase in the frequency and force of the pulse An exaltation of the organic functions, especially of the kidneys and skin, also the centers of the nervous system. All of its manifestations are excited, exhileration of spirits, flushed countenance, suffusion of the eyes, in a word all the faculties of the brain seem to be increased in activity except the reason and will.

Pariera says: "that it acts by increasing the action of the heart and other organs." The active principle becomes absorbed in many instances with great rapidity, and a large quantity is rejected from the body through the excretory organs unaltered.

Through the blood it acts on the heart and blood-vessels, and in passing out of the system it acts as a stimulant upon the glands.

The absorption of alcohol, I believe is not questioned at this time by any, as it is found passing through all the secretory organs, also it is found in the substance of the organs. Dr. Percy found it in the substance of the brain.

The alcoholic odor of the breath is an indication of the exhalation of alcoholic vapor from the lungs. The oxygen of the blood unites with the carbon of the alcohol, forming carbonic acid and water. The facility in which alcohol is thus oxydized is probably the cause of the arterial blood. Numerous chemical analyses of the blood and different tissues show that when alcoholic drinks are taken, the alcohol enters the blood and permeates every part of the body. Also reliable experiments have shown that alcohol is eliminated through the excretory organs, principally the lungs and kidneys, generally within a few hours after it is taken. It is also claimed to diminish the atomic changes in the tissues of the body, it diminishes the strength, temperature, and endurance of the body.

After twenty years service with the British troops in India, Annesley declares that the habit of dram-drinking, destroys more lives in that country, than the climate or sword. Also, Marshall proved that in India ardent spirits neither contributed to enable men to undergo fatigue or protect them against the climate. Dr. Hays in his Arctic explorations states that alcohol in any shape is not only useless but positively injurious, and also that even for temporary stimulation it should be avoided.

Alcoholic drinks have been used to keep out the heat, as also to keep out the cold. It is proven to be not only of no account, but a detriment. A man that abstains entirely from alcoholic drinks, can endure more heat or cold than one who indulges in his drams, other things being equal. So far we have presented alcohol as being regarded by scientists as a stimulant succeeded by depressions, being unnecessary, useless, pernicious, as not food. On the other hand we find scientists declaring that alcohol is a stimulant without depression following, that it is aliment, that it cheapens bread and meat. As a stimulant without depression it is assumed, that it enters into all the tissues of the body and becomes chemically united with the continued changes going on in the body. In the first place forming the hydro-carbons, by arresting the exhalations of carbonic acid by the lungs, secondly, it arrests the destruction of the tissues and enters into combination with the products of tissue decay, whereby they are again formed into tissue, without being excreted, as urea or uric acid. These bodies being highly nitrogenous and under certain circumstances, might yield their nitrogen to the construction of the new tissue, also, by the diminution of the fat. By Liebig it was placed among the heat forming substances, capable of replacing the oily, starchy, and saccharine materials. And thus in uniting with the various elements of the blood and tissues it is a stimulating support to the system, assuming that the experiments of Lallemand, Durey, and Perrin were always after intoxicating quantities had been taken, assuming that it is only after the small quantity of alcohol that we derive its stimulant and supporting effects. In forming the hydro-carbon a given principle is received, and oxygen is furnished to the system, releasing nitrogen in the metamorphosis of the tissues, also arresting the tissue changes during its elimination by the secretory organs. To confirm these positions, various experiments have been conducted on animals and man.

M. Baudot assumes that in more than twenty experiments he abundantly proves that the excretion of alcohol by the kidneys is absolutely nothing except when the dose has been very excessive. At the meeting of the British Association of 1862, Dr. Inman made the following statements: one form of alcohol or an other is available for the support of life. Alcohol after being taken, is incorporated with the blood, passes into the various tissues and ultimately disappears, a small portion only passing away in the breath. Alcohol in the form of ale, porter, wine, etc., relieves hunger and quenches thirst simultaneously and with a completeness that is not equaled by water, that is, it does not act as a water simply, nor as a stimulant alone, wine, beer etc., satisfies the appetite when taken alone, and acts for the time being as any solid food would do. Where alcohol is mingled with the food a less amount of the latter suffices for the wants of the system than if water had been used as drink. Individuals have subsisted wholely upon one or the other forms of alcohol for periods of great length.

Dr. Hammond reported the following personal experiments. See Amer. Journal of Medical Sciences, October, 1856.

First, to observe the effects of alcohol upon the system where the weight of the body was maintained at a nearly uniform standard by a sufficiency of food.

Second, to ascertain its influence upon an organism where the body lost weight from a deficiency of food.

Third, to determine its action upon a system where the body gained weight from an excess of food. The experiments under these heads relates to the weight of the body and the quality of the excretions, also the quantity of food, water, alcohol, temperature, exercise of body and mind. And he remarks upon the consideration of the experiments, that alcohol increases the weight of the body by retarding the metamorphosis of the old tissues, promoting the formation of the new, and limiting, the consumption of fat. The following effects constantly ensued:

First, the carbonic acid and aqueous vapor given off in respiration were lessened in quantity.

Second, the amount of feces was diminished.

Third, the quantity of urine was reduced.

Fourth, the urea, chlorine, phosphoric and sulphuric acid were diminished in amount. These effects occurring when the amount of food was below the quantity required to maintain the weight of the body under the mental and physical exercise taken, were productive of no deleterious results to the system, on the contrary when the food was sufficient to balance the waste from the excretions, and still more so where an excess of aliment over the demands of the organism is ingested, the healthy working of the system was disturbed and actual disease almost induced. Stille says: "Alcohol is not limited to its stimulant influence alone." It is food, referring to the various chemical investigations as proof of the position.

Professor Clarke, of Harvard University says: "There is a class of agents which tend to check or retard the disintegration of the tissues, alcohol is of that class."

Prof. Jackson says: "Alcohol is respiratory food, takes the place of so much food in our bodies in respiration. The moderate use of alcohol sustains the powers of endurance by the human system and saves the destruction of the tissues."

Professor Curtis, of the College of Physicians and Surgeons of

New York, says: "It has been proven beyond the possibility of doubt, that alcohol when drank is not ejected from the system unchanged, except in trifling amount when taken in intoxicating quantities."

Dr. Anstie, in his work on stimulants and narcotics presents a number of experiments on man and animals with the use of alcohol, and concludes that the elimination effected by the lungs and kidneys is entirely disproportionate to the quantity of alcohol taken into the system. That a sensible proportion of alcohol such as may even be recovered by distillation, and recognized by its character of inflammability should escape in the urine when excessive doses have been taken is by no means surprising. Owing probably to its paralysing influence upon the sympathetic nerves, also in narcotic doses it produces considerable diuresis, Anstie gives a number of cases that came under his observation, of persons who were habitual dram drinkers for a series of years—some as long as thirty years—and who consumed a very small portion food. One instance of a man eighty-three years old living entirely on a small finger length of bread, usually toasted, and a bottle of gin a day for twenty years. He took no tea or coffee. Dr. Slack, of Liverpool gives the case of two female patients, who subsisted for months on nothing but alcohol, one was bed ridden for three months, at the end of which she seemed actually fatter. Dr. Mesbit gives the case of a man in the middle class of life, who subsisted for seven months entirely on spirits and water, who was apparently in good health and good condition.

We think enough has now been presented to show, as we assumed, that there is a difference among scientists, in regard to the effects of alcohol in health. While some of the investigations and averments are remarkable and astonishing, there is a difference in the results to some extent among the experimenters, which should cause us to hesitate before we embrace the position so earnestly assumed that alcohol is a stimulant without depression, that alcohol is food, that alcohol cheapens bread and meat.

There should be no question in regard to our conduct, whenever we are convinced that our knowledge of an article is wrong, or that all articles should be subject to the constant scrutinizing use of the physician, and he should have no dogged adhesiveness on the one hand, or unstableness on the other. The maxim should be, "prove all things, and hold fast that which is good."

Therefore we try to look at the subject of alcohol as food free from bias. And while our teaching has been entirely to the contrary, we feel disposed to present, the strongest position that is given, to sustain the averment that alcohol is a stimulant without depression, that alcohol is food. While the advocates of the food principle in alcohol are a unit in their assumption, they differ very materially in their explanation of the fact.

Prof. Clark says: "Alcohol checks or retards disintegration of the tissues of the body."

Prof. Jackson says: "It saves the disintegration of the tissues, and with some others holds that thereby the system derives support, by preventing the waste."

Hammond says: "It has been assumed by several writers that the primary action of alcohol is the retention in the blood of the products of metamorphosis," he says he thinks this opinion erronious, and that alcohol instead of preventing the elimination of the decayed tissue, acts by preventing in a great measure their primary destruction. No one will dispute the point, that if the first of these views is correct, alcohol must be uniformly deleterious, and that it must manifest such unmistakable symptoms as could not lead to a misconstruction of its mode of action.

Dr. Anstie says: "We may be at a loss to explain the chemistry of the action of alcohol upon the body, but we may safely say that it acts as food. There is another point in connection with alcohol as food that the advocates are more harmonious upon. That is, that it must be used in small and regulated quantities to secure the beneficial effects of it, otherwise it becomes anæsthetic, narcotic poison. The difficulty in keeping within the hygienic line with the stimulant is patent to every one. It is one of those bewitching articles that we could not leave to man's self to take beneficially and successfully. It is too frequently demonstrated that they will go far beyond the food-given principle.

With Hammond we must reduce the food to get the food principle of alcohol. If not, serious disturbance to the system is produced.

Does it cheapen bread and meat? We say no. Probably those that take alcohol use less food than they would without alcohol, but it is because the system is in a morbid condition from the alcohol, as St. Martin's was, and cannot take so much food, and cannot perform the same amount of labor, nor endure the same amount of hardships. Probably for a short time the system may be sustained and increased by the retention of the food elements in the blood, which would ultimately become pernicious and destructive. It would seem remarkably strange that a living organism could live upon its own "shoddy," and would seem as likely to continue as keeping man clothed by remaking his old clothes.

If the system could be sustained in equal power and endurance then the question would present itself, which is the cheapest, alcohol or bread? While we do not admit that man can under any circumstances perform an equal amount of labor and endurance in the use of alcohol, with one that does not partake at all. We maintain that any one can fully determine both its individual and collective costs and effects. We find that the use of alcohol deteriorates the health and shortens life. We are conversant with the fact that alcohol produces a large proportion of the most dangerous and painful diseases we meet with. So destructive to longevity is it regarded by those watchful observers of the health of man (life insurance companies) that they are refusing to grant policies to dram-drinkers. It is so patent that alcohol is a stimulant poison and not food, that we are profoundly surprised at the plausible investigations to set aside, the long received convictions of the experience of men, by reducing the quantity of alcohol to be taken and assuming that the chemico-physiological changes of the system by a few days investigations. I presume that as a matter of cost, the amount of money expended for alcohol would bread the entire human family and when we take into consideration the loss of physical strength and health that are produced by the use of alcohol, that loss saved appropriated for bread and meat, would furnish enough for all men. Then you take into consideration the amount of money, expended in prosecutions for crimes committed under the influence of alcohol and the support of criminals in your jails and penitentiaries. Also the expense of keeping your paupers, your insane, your idiotic, that are caused by by the use of alcohol. And we should have a fund sufficient to feed and clothe comfortably, the entire human family. Therefore in every sense that alcohol deteriorates the mental and moral forms, or the physical strength or financial abilities of man, just in that proportion it increases the price of bread and meat.

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Art. 5.—Dislocations of the Shoulder Joint, and some of the Accidents resulting therefrom. With History of a Case, and Post Mortem Examination of the same.

By GEO. S. COURTRIGHT, M. D., Lithopolis, O.

A Paper read before the Hocking Valley Medical Association, at Lancaster, Ohio, April 18th, 1875.

Gentlemen: Dislocations of the shoulder are of common occurrence, and therefore deserving of more attention than is usually given to them. We learn by referring to works on surgery, that they are more frequent than all other dislocations, which is easily accounted for by the shallow condition of the glenoid cavity and the extraordinary latitude of motion peculiar to this articulation.

As you all know there is in many persons, particularly in females and children a tendency to relaxation of the ligaments and muscles of the shoulder joint and the slightest accident under such circumstances being sufficient to produce a dislocation, and in cases of men where there has been a dislocation, very frequently we find that the head of the bone slips from its place very easily, and the patient is often able to reduce it without any assistance—or of that of some one at hand, and in such cases it is very seldom that a physician or surgeon is consulted, there being some soreness and stiffness remaining for a few days when the patient resumes his usual occupation.

Age exerts a material influence in the production of this dislocation, and experience has also proven, that they are not as frequent among women as among men. There does not seem to be any anatomical reason for this, but it seems to be due more to the fact that men in their varied occupations are more liable to receive blows and falls which will produce the luxation.

It is not necessary for me to enter in detail to give you the different names applied to this luxation—as authors differ in regard to them—or to give you the signs, or symptoms, or to name the parts injured in the cases that you will meet with; but will give you the history of a case, with the result of a *post mortem* examination, that is out of the ordinary course of such accidents.

M. F——, æt. 23, of medium height and build, figure good—laborer. Was injured January 28, 1875, about 9 o'clock P. M., by a horse falling with him, as follows: The night was very dark.

The ground had been frozen very hard, and a slight rain during the day and evening, with a rise in the temperature caused a slight thawing of the ground, so as to be quite sloppy, and slippery.

He was riding a colt without any shoes, and just as he was leaving town with his cousin, they started into a brisk gallop. Soon after they crossed a small bridge or culvert on the pike, elevated above the water some four feet and just as they crossed this, the horse slipped on it, and on the side of the pike, and fell on its left side throwing the young man to the left.

He was at once brought to my office, and I found a dislocation of the left shoulder joint downwards and forwards causing what is known as the *thoracic variety*.

This thoracic or the subclavicular of the French surgeons, is comparatively rare. and is usually caused by a blow directly on the head of the humerus, or to the elbow when the arm is elevated and carried behind the central line of the body. That was the manner it occurred in my patient, as the fore arm just in front and on the under surface of the elbow was contused, the arm being elevated, striking the solid gravel almost before the horse was on the ground. The overcoat was torn two inches in front of the seam, where the sleeve is joined to the coat, over the head of the bone as I found it displaced. Showing that a great amount of injury was done to the ligaments, that were ruptured in the luxation.

The horse at the time sliding down the bank before recovering its feet. I have been thus minute in the description of the manner of his being injured, as it will bear a very interesting part in the subsequent history of the case.

The bone in this dislocation is thrust to the sternal side of the coracoid process just below the clavicle and resting against the second and third ribs. The anterior and inner parts of the capsular ligament are extensively ruptured, and after considerable injury to the muscles. Especially the subscapularis which is often torn from its attachments to the head of the bone.

"Erichson," in his late work on surgery, says: "He has seen the lesser tubercle itself completely broken off, in two examples of this accident which he has been permitted to examine after death," and as he states, "it seems in some cases to be a trial of strength between bone and muscles." The capsule is generally torn very extensively and the circumflex nerve may be contused, causing severe pain at the time of the receipt of the injury.

I placed the patient on his back on a small lounge, and with my heel covered by a woolen sock in the axilla, and by traction, and by rotating the arm outward, I reduced the dislocation easily and with but little force expended, either by traction on the fore-arm or by the heel in the axilla. The head of the bone entering the glenoid cavity with an audible snap. There was no anæsthetic used, nor any anodyne, or medicine whatever given. The whole time occupied in reducing the luxation did not exceed three minutes. On examining the parts after the reduction there was no apparent injury to the soft parts, and no acute or severe pain about the joint.

I placed the arm against the side with the fore-arm across the chest, and applied a bandage around the whole to keep the parts quiet until morning. As his home was three miles in the country I directed that he should remain over night, which he did.

The next morning there was nothing unusual about the joint, or the parts, and no swelling in the axillary space, I placed a sling or bandage on the arm under the clothing, and with directions to keep quiet, and not use the arm in the least, I dismissed him.

I either saw or heard from him every two or three days, but he disregarded all advice or directions as to keeping quiet, running around not only during the day, but at night, to gatherings in the country, such as spelling schools, where the room is heated to excess and every one perspiring freely and then going out into the cold, and walking two or three miles to his home. During this time, or rather after three or four days, he threw off the bandage and put on his coat.

On Sunday, February 7—ten days after the receipt of the injury—disregarding all directions, he also put on his overcoat and walked two and one-half miles to his uncles, and toward evening, when advised by his uncle to go directly home, as the weather was very cold, and a brisk wind blowing, and the weather growing colder, he said he would do so. But instead he went a short distance and sat up with a young lady all night in a cold room, with no means of heating it but a cook-stove, and walked two miles home. Arriving there at daylight, very cold, but did not complain of any pain or trouble in or about the shoulder joint.

The mercury in the thermometer had been gradually falling all night, so that it was then several degrees below zero.

In a conversation with the young lady since the commencement of this article, she states: "That he pulled off his overcoat and when he left would not put it on, but threw it over his shoulder, and that instead of any pain, he said it felt sweaty, and itching in the axillary space," and that she wanted him to put on his coat as the wind would strike his shoulder going home, but she could not induce him to do so.

Up to this time he had not had any pain or uneasiness, or trouble at the seat of injury, and no swelling or tenderness in the axillary space. In fact had there been any pain or soreness (as he said afterward) he would have been more careful.

During this day February 8, they slaughtered hogs, and he had the rifle and tried to shoot two or three hogs, but as the weather was very cold, the gun was taken from him and he was ordered to remain in the house, but he did not obey. Towards evening of this day he complained of some soreness in the joint, and as the evening wore on it became severe pain, as he described it, "sharp pain on the bone." I sent him an anodyne but as it only partially relieved him, I was requested to see him, which I did at 4 o'clock A. M., February 9th. At this time I found him suffering with severe pain and a slight swelling in the axillary space, and on the front near the surgical neck of the humerus. The head of the bone was in its place, and no swelling or tumefaction over the head of the bone or in the pectoral region.

I looked upon the case, as inflammation of the axillary glands caused by his severe exposure of the previous night and day, and this assertion was afterwards verified in consultation with Dr. Short, of Canal Winchester, and still later by Dr. Bennett, of Lithopolis. He was placed on antiphlogistics with anodynes internally, and anodyne and evaporating applications to the swelling at the joint. This treatment was continued for some days, when it became evident that suppuration would take place, as the swelling gradually enlarged and the arm became tumefied from the pressure on the axillary vessels. The treatment was then changed to a tonic and supporting one, with emolient applications to the axillary region, and on March 3rd, an exploring needle was introduced to the depth of one and one-half inches in front over the most prominent part of the swelling where there was slight fluctuation but no true pus was discovered. From this time the swelling gradually increased and the whole arm became tumefied and swollen to a great extent so much so that, no pulsation could be detected in the radial artery at the wrist. On March 21st, Dr. Potter, of Canal Winchester, saw the case with me, and it was decided to puncture the swelling at the most dependent part, with a long bistoury, which was posteriorly in the axillary space, at this time some dark disorganized blood escaped, and on introducing a probe for two and one-half inches, no true pus was discovered, after this there was a discharge from the opening—at times considerable and with some disorganized pus, but no abatement of the swelling of the arm and hand—during this time the temperature ranged from 101° to 103½° Fahrenheit. Various remedies were applied to the arm and hand and it was wrapped in woolen bandages to keep up the temperature.

On March 27—six days after the opening was made, there was an attack of hemorrhage from the opening. I saw him soon afterwards and found it had been arterial, but was easily controlled by a small compress on the opening. I looked upon the hemorrhage as caused by one of the small branches of the axillary having given way from the sloughing. On the 28th, there was another attack of hemorrhage and in consultation with Dr. Potter we decided to wait until the next day and see if his condition would improve, before resorting to an operation as he was very much prostrated, but it did not, and on the 29th, we found that there were symptoms of gangrene, such as a discoloration of the integument, with a loosening of the cuticle, and general flabbiness of the whole arm. He died on the 30th from hemorrhage, caused by the gangrene extending, and the sloughing of the blood vessels in the axillary region. To recapitulate, we have the dislocation occurring January 28. Doing well until February 8—eleven days—when inflammation commenced—fifty days from this time until death. Eighty hours from the time of the first hemorrhage until death. *Post mortem* eighteen hours after death.

On opening the shoulder, found the tissues so much disorganized from the gangrene, that it was impossible to distinguish the vessels. Found the axillary artery and vein both sloughed off and the muscles in such a condition that they could not be distinguished. Any one who has ever made any examination after one attack of gangrene when a whole limb is involved, will know that it is utterly impossible to make out the branches of the main artery, and in this case we could not tell what branch first gave way. The head of the humerus was in its socket, but the capsular ligament was *entirely sloughed* away on the front, with caries of the bone, and also where the subscapularis and lattissimus dorsi were attached. The lesser tuberosity was not broken off, but the caries extended from the anatomical neck of the humerus, down the bone three and one-half inches, and about one-third of the circumference of the bone.

The periosteum was loosened from the bone almost down to the elbow-joint—but of this, part may have been due to the gangrene. The specimen could not be obtained.

Remarks.—From the results obtained in the post mortem examination, it is certain that the inflammation commenced where the ligament, and insertion of the subscapularis and lattissmus dorsi were attached to the humerus, and injured at the time of the accident, but that would not have been the case, had it not been for the severe exposure he was subjected to ten days afterward. And the extensive disease of the bone cannot be accounted for in any other way, and our failing to reach the pus with the exploring needle was owing to its being so deeply seated.

In the Medical and Surgical Reporter, of February 26, 1876, page 168, Dr. Weir, reports a case, and presents a specimen of the humerus which when the swelling commenced was mistaken for rheumatism, but soon afterwards an abscess was detected, and afterwards opened, which then passed on to the stage of suppuration, synovitis and erosion of the cartilage of the joint, on operating, the glenoid cavity was also found to be involved. The report does not state the age, sex, condition or probable cause of the disease.

The question in my case after the hemorrhage commenced, was whether to tie the subclavian artery or amputate at the shoulder. In the former there was no hope of success, as by tieing the artery in the condition the arm was in would have caused the whole arm to slough, as we could not depend on any collateral circulation, and we were trying to get his general condition improved by the free use of stimulants, before resorting to amputation, when gangrene commenced and destroyed our last hope.

In Frank H. Hamilton's, great work on Fractures and Dislocations, fifth edition, 1875. We have under accidents reported:

Rupture of arteries, nineteen cases, most of which were known to be rupture of the axillary artery, and in most of the cases reported when the subclavian was tied the patient died. And it will be observed that in cases reported of rupture of the axillary artery, the dislocation of the humerus was downward, and not in the thoracic variety.

Rupture of artery and vein—probably two cases—one died, and one not stated.

Rupture of the vein alone—two cases—one saved and one died.

Avulsion of the arm—one case—patient died.

Injury to the axillary nerves—there are many cases reported from time to time.

Inflammation of the joint and glands—we find by looking over the medical literature on the subject many cases reported.

Fracture of humerus near its upper end with dislocation, several cases, and on page 601, he says in speaking of this accident: "I have however, twice failed in attempts to reduce similar dislocations."

In no work or medical journal that I have examined have I found an accident similar to my case and I have been led to the following conclusions from it.

First, that there was extensive laceration of the capsular ligament and of the tendons of the subscapularis and lattissimus dorsi at their insertion into the humerus, at the time of the accident, as shown by the manner of receiving the injury and the history of the case.

Second, that the case would have terminated in perfect and rapid recovery had it not been for his severe exposure ten days after the accident, when inflammation or periostitis began at the seat of the injury, and caries was the result.

Third, that should it ever be my misfortune to meet with another such case, as soon as pus was detected I would not trust to the exploring needle, but would use the aspirator and introduce it down to the bone, or until I found the pus, and thus evacuate it—taking care of course not to introduce the needle so as to wound the vessels and nerves in the axillary space.

Fourth, that in all cases of dislocations of the larger joints, that we should not only advise but insist that the patient should keep quiet and not use the part for at least three weeks after the receipt of the injury.

In the preparation of this paper I have made use of the works of Hamilton, of New York, Gross, Erichson, Sargent, Gray, Wilson, and many medical journals for which I here acknowledge thanks.

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Art. 6.--Ophthalmia—Neonatorium.

By W. R. AMICK, M. D., Cin. O.

Was called to see Mr. Francis' child, 457 W. Sixth Street, on Sept. 27th. At that time it was four weeks old. The mother stated that its eyes had been somewhat inflamed since birth, but for the last ten days had been getting much worse. She had been advised to let the child's eyes alone, as it was only "cold" and would pass off in a few days.

When we first saw them there existed a high degree of inflammation. The lids were very much swollen, so much so, that the cornea of the left eye could not be seen without the aid of an elevator. The lids were puffy with an increase in redness and temperature. The conjunctiva was very much swollen, red and succulent. The ecchymosis, especially in the left eye, was marked. There was a very free purulent secretion, the lids being completely glued together in the morning. When they were opened in the morning, there would be a considerable quantity of pus making its escape. The cornea were not affected, neither were the irides. As the child, naturally good natured, now spent nearly all of its spare time in crying, we, of course, inferred that there was considerable pain attending the trouble.

When the lids were opened and the eyes cleansed with tepid water, it would remain comparatively quiet for an hour or two. But when the accumulation under the lids increased to a certain extent, then it would manifest its suffering by crying, until again relieved. There was spasm of the orbicularis with a tendency to entropium, which prevented the pus from escaping directly when secreted.

The treatment consised at first of everting the lids, and making an application, once daily, of arg. nit. grs. v. ad aq. dest. ℥i.

During the day, at intervals of two hours, a few drops of a five grain solution of alum was used. The eyes were cleansed previous to the application of the medicines. This treatment was continued for two weeks, with at first a decrease in the swelling of the left upper lid, and at the same time an increase in that of the right. Frequently, when the lids were brushed, they would bleed, which is considered favorable. At the end of two weeks there was very little swelling of the lids. The conjunctiva was still considerably inflamed, and the discharge moderately marked. Then a ten grain solution was substituted for the five and continued for a week. At the end of the week there was a marked improvement, and the five grain solution was again resorted to. Four days later it was changed to a two grain solution, which in three days was changed for a three grain solution of sulphate of zinc. The latter solution was used for a few days and then discontinued altogether, the inflammation having disappeared. Ever since, its eyes have remained "clear and bright," with one exception, when it had a little catarrhal trouble which disappeared in a few days.

During the course of treatment, when the child was suffering with pain, the camphorated tincture of opium was used, the size of the dose, as well as its frequency depending on the symtoms.

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Art. 7.—A Case of Right Hemiplegia and Aphasia, with Mitral Disease of the Heart.

By C. G. COMEGYS, M. D.,

Lecturer on Clinical Medicine at Cincinnati Hospital.

Arthur H., æt. 38, of healthy parentage, had an attack of rheumatism some years since, and thereafter has suffered more or less, from general dropsy due to insufficiency of the mitral valve, and stenosis of the aortic orifice.

Two years ago he was placed under my charge on account of great embarrasment in his breathing. I then observed the cardiac lesions mentioned above, and found, besides, that he had a right hydrothorax. I punctured the chest, and drew off one gallon of clear serum, employing for this operation a Davidson syringe which acts very well, both as an aspirator and a siphon.

The dyspnœa was very promptly relieved, and by the employment freely of alkaline diuretics the ascites and anasarca disappeared.

While still under observation he was suddenly attacked with a right sided paresis of the extremities and face, and aphasia. He was not unconscious at any time, only he could not express himself in words.

All of this was happily of short duration, for at the end of three or four weeks he was able to walk out, and there was not much embarrassment in expressing himself.

I attributed the paresis and aphasia to an obstruction in the left middle cerebral artery, especially the branches of supply to the left corpus striatum, and the posterior aspect of the left third frontal convolution, due in all probability to substances transported from the diseased heart.

Although his general condition continued to grow better, yet his mental capacity was evidently on a lower plane than of old. I supposed that the establishment of collateral circulation in the left corpus striatum and third convolution had become sufficient for the revival of the functions of those parts. The patient was incapable of performing any labor at his carpenter trade, but rendered himself useful by sitting in his brother's place of business to receive his customers.

Two weeks ago I was called to see him again after an interval of 18 months, on account of his difficult breathing. I found this time, that his left thorax was filled with fluid, the result of a slight pleurisy, for which his family had not thought it necessary to consult me. The heart was pushed quite beyond the sternum to the right, and was throbbing under the right nipple. No other dropsical state existed.

The next day was appointed for another tapping; but during the night, he was seized suddenly with unconsciousness and a right sided paralysis. When I saw him in the morning, he was unconscious still; the head and eyes turned to the left, while the face, arm, and leg of the right side were powerless. Slight reflex actions were aroused by rubbing the palm of the hand, and more decided ones by pricking the foot.

I punctured the chest and drew off nearly a gallon of serum, slightly tinged with blood. The heart returned to its normal position, and the respiration ceased to be labored.

At the end of three days the deviation of the head and eyes to the left had ceased; his consciousness was restored in a large measure, for he recognized me and would protrude the tongue, which turned to the right; but he could not talk at all; the only words he attempted to utter were: no, no, and yes, yes, and these not by any means appropriately; they were his entire vocabulary. The paralysis of the right side did not get better, but he could get out of bed and stand on his left leg, holding to the bed-post with his left hand.

The pupils which had been immovable but not dilated for the first day or two, had now become somewhat active. There was no lack of sensation in his right side.

I readily recognized at once, that a much greater lesion existed now than formerly, in the territory supplied by the left middle cerebral artery, and there was the very poorest prospect of a recovery; nevertheless, as his mental condition became much better, there arose a hope of the possibility of still further amendment, that the patient might have a new lease of life; but he died suddenly, on the on the fourth day from the attack.

The autopsy was made by Prof. J. C. Mackenzie, which I give in his own words.

"Post mortem examination made eighteen hours after death. Body not at all decomposed and not very markedly emaciated. An unusual amount of blood flowed from the scalp where it was divided. The calvarium presented nothing abnormal, before its removal there seemed to be beneath the anterior portion of the dura mater, on the left side, a semi-fluid mass, which appearance, upon the reflection of membrane, was found to be owing to softening of the brain substance, this softening involved almost all those portions of the brain upon the left side and convex surface anterior to the ascending frontal convolution, and had given rise to a brownish yellow discoloration of the surface. The softening implicated the white as well as the grey substance and scattered throughout the softened tissue were numerous punctiform hemorrhages. The insula of the left side was quite normal, but the third frontal convolution contiguous to the external portion of this lobe was very much softened.

The membrane was also in a condition of abnormal softening. The head of the caudate nucleus, the anterior portion of the internal capsule, lenticular nucleus and external capsule were likewise very much softened, the softening extending more deeply in the internal capsule than in other portions of the corpus striatum. The thalamus opticus and posterior portions of the left hemisphere and the whole of the right hemisphere were quite normal. The walls of the branches of the left sylvian artery were in many places much thickened, and in one of them the thickened internal coat was detached from the subsequent tissue and might possibly, by acting as a valve, have interfered with the blood supply to the parts beyond. Although the arteries were traced into the softened brain tissue, at no place could a thrombus or embolism be discovered. A microscopical examination of the softened tissue revealed numerous granular bodies and debris of nerve tissue. The walls of the small arteries contained fatty granules in some places in considerable amount."

Remarks: — Although an embolus was not found, yet such a diseased condition of the left middle cerebral artery existed as to produce the softening in its territorial area. The right hemiplegia and aphasia are fully explained by the destructive lesions in the left corpus striatum, and the posterior aspect of the third frontal convolution. So much testimony has been gathered that a state of aphasia is due to a lesion of the left third frontal convolution, that it has become one of the easiest points made in cerebral diagnosis. The strong deviation of the head, and of the eyes to that side of the brain affected, is another notable symptom in the case.

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CAPILLARY NÆVUS.--Dr. Bradley (*Brit. Med. Jour.*) states that he has practised tattooing the skin over "port-wine stains" with carbolic acid. The result was a complete disappearance of the disfigurement in about three weeks. He recommended a further trial of this method.

Art. 8.—Relations of Scientific and Professional Education. Practical Optics for Medical Students.

By Prof. R. B. WARDER.

Two and two are four—this is always true, whether we are counting grains of sand, or planetary systems, whether the child is conning the arithmetic, the laborer counting his wages, or the mathematician calculating quarternions. Science consists of knowledge, methodically digested and arranged; it embraces those broad generalizations of facts which are themselves independent of all practical applications, though a thousand matters of technical importance may depend upon science. The processes of manufacturing acids and alkalies, of smelting iron, or of preparing the delicate coal tar colors, do not constitute the science of chemistry, and a museum to illustrate such industries would hardly deserve the name of a scientific collection: chemistry as a science, is far deeper and broader than the most elaborate discussion of all known chemical operations could possibly be. Science underlies its practical applications, and may contain within itself the germs of a thousand unsuspected facts that may give rise to new industries, influence the course of commerce, and affect the prosperity of nations. Take an illustration of this distinction between science and technology. When Graebe and Liebermann were investigating the properties of the quinone group, and working out the synthesis of alizarine, they were engaged upon a purely chemical problem. They were searching into the relations of the atoms of complex molecules. This phase of the science has been ridiculed as the "blackboard chemistry of the Germans" by those who do not comprehend the true import of the diagrams used for illustration; but the real scientific importance of the investigation is to be estimated by the additions made to our knowledge of the laws of nature. As a secondary result of the work, it soon became manifest that alizarine, or the coloring principle of madder, can be made more *cheaply* by the new process, than by extraction from the root of rubia tinctorum. The item of economy does not belong to natural science, but to technology, yet this is the necessary condition of all "practical applications" in the manufacturing art, and it was on the score of economy of production that a new industry arose (based on the discoveries of the chemist) which has already nearly supplanted the natural madder in the market, and has changed the agricultural aspect of large districts in Europe, which were devoted but a few years ago to the cultivation of the madder plant. The coloring properties of alizarine add nothing to the scientific importance of the investigations described, but only to their economic value. Hundreds of other truths which have made no stir in the world are equally important to the chemist, not because they too may eventually influence the fortunes of a million persons, but simply because they are scientific truths, and form a necessary part of that grand temple of truth, in which the scientific mind delights to dwell.

What distinction can we now make between purely scientific education and the training for those professions whose pursuit depends upon the applications of science? On what principles must a course of instruction in medicine, in law, in engineering, or in agriculture, differ from a general course in science *per se?* Or, in what way may such courses be made to support and aid one another. We may address our inquiries to that nation which has devoted most attention to the science of education.

The German educational system is unique; it flourishes with wonderful vigor in the land which has given it birth; but to introduce and to maintain such a system in this country would be alike impossible. While then we cannot imitate the German system, we may at least study it with admiration, and gather valuable suggestions adapted to our own needs.

For the purpose of the present essay, we may compare the following institutions:

First class—Philosophical Faculty of the University.

Second class—Professional Faculties and Polytechnic Schools.

Third class—Lower Technical Schools.

The university is the object of the German's honest pride. Every student is entitled to pursue any department of human knowledge that he may choose, and the same liberty is accorded to every instructor. Cultivation of every department of literature and science is the ruling spirit. In the Philosophical Faculty all practical applications are regarded with less esteem than pure science; yet many who prepare themselves to make a living by means of applied chemistry, regard a university career as the best training they can select.

In the Faculties of Medicine, Law and Theology, the same spirit of scientific inquiry prevails. Elaborate research, or the solution of new problems is demanded of all who aim at excellence. And one of the most important conditions of the German's brilliant success is the thorough mental training demanded for admission to the university studies. He is not permitted to begin his medical course, till about nine years training in Latin, with seven years of Greek, have prepared him for the nicest discrimination of words, and of the ideas which words represent. The same, or an equivalent course of disciplinary studies is required for admission to the other departments. But whereas, in the Philosophical Faculty, almost any department of knowledge may be made the subject of the final examination, in the others a knowledge is required of those particular subjects which are deemed essential for the practice of the profession chosen.

The Polytechnic schools are designed to afford thorough scientific training for the professions of Civil Engineer, Mechanical Engineer, Architect, Chemist etc.; sometimes also for that of Agriculture, or Forestry. The same freedom of studies exists here, as in the university, and certificates are issued to each student for the courses of lectures or other exercises actually attended; but to secure the diploma, rigid examinations are required, covering a wide range of studies, carefully selected with reference to the profession chosen. Careful discrimination is made between the fundamental and the auxiliary sciences; and each student finds a thorough course in each study that is of special importance to him, and encyclopedic courses on those subjects which are desirable for his general information rather than indispensible for the practice of his profession. While the requirements for admission are not uniform, the aim in general is to secure as full a course of disciplinary studies in preparation for the Polytechnic School, as for the University; and the same spirit of scientific investigation is often manifested, irrespective of practical results. Enough has been said to illustrate the broad culture which our neighbors in Germany consider to be essential for any kind of professional life; but the lower technical schools remain to be considered. Many a lad cannot spend twelve full years of study before beginning his professional course. He understands this, and is not disposed to contend with impossibilities. An intermediate plane of social life is open before him, as builder, machinist, designer etc. For this class special schools are provided, called "Gewerbe-Schulen," in which a few definite courses of study are laid down, from which the selection must be made. The conditions for admission are relatively low, and the instruction is adapted to the requirements of those who are to be practical foremen of shops, etc. The results of science are here communicated to those who would be unable to carry on original investigations; and whereas the calculus is studied during the first year in the polytechnic school, that it may be an obedient servant for the student's subsequent career, this branch of mathematics is not usually taught in the lower technical schools, where the student must content himself with the results gained by others.

And now, in America, what is the standard of our own professional schools? Is our average student of law or of medicine expected to make an original and exhaustive investigation, before taking his degree? Does he not usually enter upon his professional studies with such slender preparation and mental discipline, that his whole energy is required to swallow and digest the information imparted in lectures? It is only the more ambitious and better prepared of the medical students, who have the ability to choose a specialty and study it thoroughly, and to make themselves acquainted with the various collateral subjects that would set them on a higher level, and broaden their horizon. Not only is the student's receptive faculty limited; so are also the resources of the professional schools. An institution whose whole income consists of a fraction only of the fees paid by medical students in Cincinnati, cannot be expected to furnish instruction on every topic that would be interesting and valuable to the physician. The remedy for this want, in part at least, may be reasonably expected from the university, with its non-professional lectures and exercises. The university, the medical school, and the law school, bound by no legal obligations to each other, may stand side by side with friendly feelings, and the mutual interchange of neighborly courtesies. Each has its own corps of instructors, and its own students, but each may be willing to aid the others. Let the relations be carefully studied. University students of natural history or of biology must not crowd the medical students out of the front seats at the clinic, neither should the latter interfere with the work of engineering students in the university laboratories. The conditions for admission to the various schools is also a matter of great importance. Every true teacher seeks to adapt himself to the condition and mental calibre of his class. A graduate from one of our High Schools has enjoyed a certain amount of mental discipline, which enables him to grasp a new idea much more quickly than the student of more limited education. A student of one school ought not to be admitted to special studies in another, simply because he is a student of the first, but only on proving himself qualified for it.

To emphasize that kind of friendly interchange which is intended, a practical example will be cited. Every physician has abundant cases of impaired eye-sight, and this too often results from errors in the selection and use of spectacles. Perhaps the unfortunate sufferer and some ignorant spectacle peddler are alone responsible for the disease; yet it cannot be denied that too many young men graduate from our medical colleges witn no thorough comprehension of the fundamental principles of optics, or their application in the structure of the eye and the use of glasses. The usual course of medical lectures is too crowded with strictly professional subjects to supply all the auxiliary sciences that would aid the physician. While the anatomy and pathology of the eye are ably discussed, a clear understanding of the underlying principles of physics may be wanting; and to meet this lack we may reasonably look to the University of Cincinnati. The following statement from the official catalogue relates to the course in physics pursued during the present year in the university: "Engineering students and others who may be unable to take the entire course, but who desire special instruction in those principles of optics which relate to telescopes and other optical instruments, can be admitted to the class during the winter term."

In this special course, beginning Jan. 2nd, the subjects of reflection and refraction of light will be taught by recitations, lectures, and practical exercises in the physical laboratory. Students will be instructed how to determine the focal length of lenses and mirrors, and to calculate the results produced by their combinations. Those mathematical relationships will be discussed, which find their application in simple as well as in complicated optical instruments; and while this course is especially designed to meet the needs of engineers or others who make use of telescopes, it will also prove a valuable aid to those who are interested in the functions of the eye, the principles of the microscope, or the right use of spectacles.

The University Board has made provision for students who desire to pursue special studies; and it is greatly to be hoped that some of the medical students in our city, with the ambition to be equipped in all points, will avail themselves of the ample facilities thus offered in the university laboratories. Some have already as much work as they can do, and are striving for their diplomas as the chief goal of their student life; but the system of "progressive courses" may enable others to pursue additional studies a few hours each week in the university building. This privilege, of course, is offered on the same conditions to any graduates of medicine who may have time to avail themselves of it.

Some practical difficulties will of course hinder such a co-operation of scientific and professional schools, as that proposed in this paper. About twenty minutes are required to go from the medical colleges to the university, so that a student on leaving a lecture-room of the former at eleven o'clock, could not hear a full lecture in the latter (according to the present time-table) until twelve o'clock; and any extra courses in one institution might interfere with the regular work in the other. Should it prove desirable, however, to offer students of one school the privileges of instruction imparted in another, satisfactory arrangements may be made from year to year, to accommodate the greatest number possible.

A second difficulty may be the want of adaptation of the instruction in one school, to meet the requirements of special students who have but limited time to pursue a given subject, and whose chief interest lies in a particular phase of it. With proper care, this difficulty may also be overcome. What would otherwise be given in a continuous course, may be broken into such parts that special students can select that which is of most value to themselves. For example, the course in physics already mentioned, includes the subject of sound during the first term and the more practical discussion of light for the winter term; while theoretical optics, with those phenomena upon which the undulatory theory chiefly rests, are to be reserved for the third term. It is believed that this arrangement, which provides for the admission of engineering students and others for a single term, will not interfere with the best interests of the regular scientific students who take the full course.

One possible danger, however, must be carefully avoided. While certain students may be seeking for limited courses of applied science, the university instruction should always maintain the highest possible ideal, always presenting the scientific phase of knowledge, as that of the highest value. The fundamental principles are of first importance. The unity of science must be presented, rather than the details of many-sided practical applications; the latter should never be a substitute for the former, but its legitimate outgrowth.

UNIVERSITY OF CINCINNATI. DEC., 1876.

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Art. 9.—Hey's Operation.

By N. H. CHURCH, M. D., Chicago, Illinois.

Master Matz, aged 13 years. German, thin in flesh; of rather a nervous temperatment, illy nourished. Was sent to me Aug. 3rd, from one of the planing mills, near by, with an injury of the foot, involving the greater portion of the metatarsal bones, and the anterior portion of the plantar surface of the foot. I had him conveyed to his home, and with the assistance of Dr. F. W. Stebalts, amputated at the metatarsal articulation, taking the prominent fifth metatarsal on the outside, and the first metatarsal on the inside as a guide constituting Hey's operation, which was slightly modified, as I was obliged to make somewhat of a flap from the dorsal surface to make up for the deficiency of the plantar surface. Dr. S. compressed the femoral artery, and but very little hemorrhage followed. The plantar arteries, and the communicating branch of the dorsalis pedis, were ligated; the wound was closed with silk sutures; the patient given an anodyne, and we departed to call again a few hours after. The patient being illy nourished, quinine and iron, and a generous diet was ordered. In a few days it was evident that the operation should have been performed at the transverse tarsal articulation. We were desirous of saving as much of the foot as possible. I think it was on the fifth day after the operation that the dorsal flap showed evidence of gangrene, and the whole surface of the wound had a gangrenous tint.

Carbolized glycerine and alcoholic dressings, had been in use since the reception of the injury. The wound was frequently bathed with warm water. I cauterized behind the slough with nitrate of silver, suggested renewed attention to the dressings, and increased the dose of quinine and iron. For several days the bacterian invasion seemed to march onward, and the prospects for re-amputation — which the father of the boy sternly refused to allow — were very favorable. I persisted in the constant use of the antiseptic dressing, also the quinine and iron, and urged the importance of a wholesome diet. The tenth day after gangrene commenced a red line of adhesive inflammation separated the sphacelated portion from the living. After the slough had entirely detached, the wound suppurated and granulated, and the case went on to speedy recovery.

Today the boy has a number one stump, and with the aid of a shoe I am having fitted for him, will be able to use the foot to much greater advantage than he would had the operation been performed at the tarsal articulation.

The shoe is but an ordinary one, with a well fitted wooden last toe—on the inside of shoe—slightly turned up, to be well padded on the surface that comes next to the stump.

The success of the operation is evidently due to good feeding; the liberal use of quinine and iron, aud the constant use of the antiseptics.

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JOHNS HOPKINS HOSPITAL, BALTIMORE.—The trustees of this institution have been so fortunate as to obtain the services of Dr. John J. Billings, Assistant Surgeon, U. S. A., as professional adviser. This excellent appointment is another proof of the good judgment which the management has so far conspicuously displayed in the performance of their difficult task.

Art. 10.—A Case of Ovarian Cystic Tumor—Ovariotomy. Recovery.

By W. L. McALLISTER, M. D., New Sharon, Ia.

On the 24th of October, 1875, I was called with Dr. J. H. Fry, of Union Mills, Iowa, to see the wife of James Playle, living at Agricola, Iowa. Approaching the bed in which the patient was lying, it looked as if there was a great mound covered by bedclothes, and from which a woman's head protruded.

A careful and thorough examination was made and the case recognised as one of ovarian cystic tumor. From the urgency of the symptoms, immediate paracentesis abdominalis was determined upon.

We introduced the trocar in the place generally chosen for this procedure and obtained the enormous quantity of fluid of a good sized wash tub full, and two gallons more in a wooden bucket, altogether not less than thirteen gallons.

After the operation, the patient was very much prostrated; she rallied however under supporting treatment and was soon enabled to leave her bed.

With returning health the sack refilled, and January 27th, 1876, we found it necessary to repeat the paracentesis. She was again tapped in March. From this time the case became serious. The patient remained prostrated, suffered more, was unable to rest, and everything indicated that unless something was promptly done, the case would soon terminate fatally.

A radical operation was therefore determined upon May 14th, 1876, assisted by Dr. D. L. Adams, of Tama City, Iowa, and Dr. Wilson, of Agricola, Iowa. We performed the operation of ovariotomy, commencing near the pubes, we made an incision ten inches in length in the median line until the umbilicus turned a little to the left of it, and returned again to the linea alba. Cutting carefully through one layer after another, we soon came upon that blue, glistening membrane, the appearance of which no surgeon who has once seen it, will ever forget. After dividing the peritoneum the entire length of the incision, and when on the point of plunging the trocar into the sack, an incident occurred, which may be well to relate.

The patient, who from the dread of the operation had not digested her morning meal, commenced to vomit violently. The action of the abdominal muscles and expulsive efforts generally, would force the tumor, which at this stage was most exposed, out almost to the point of bursting; as the vomiting ceased and the system relaxed, the tumor would return to its former position. During this time it required all our efforts to control the tumor and the patient.

Proceeding with the operation, we found the adhesions anteriorly, along the linea alba, to be very great; posteriorly the tumor was still more firmly attached. That portion dipping down into the pelvis was so firmly united with the peritoneum that it required almost a dissecting process to free it.

This being accomplished, it was discovered that all the uterine organs were included in the diseased mass which formed the base of the tumor, rendering the excision of both ovaries, fallopian tubes and uterus necessary. We had made preparations to fasten the pedicle externally with a long clamp. The condition of things, however, left us no well defined pedicle; we ligated the mass and found it very difficult to draw the base out far enough to fasten with a clamp. In fact, in forty-eight hours the clamp was forced off.

The excision made, the bleeding checked and the parts properly cleansed, we closed the wound with several sutures through the abdominal walls, and a few smaller and more superficial ones; a few adhesive strips and a bandage constituted the dressing.

In the midst of the solid portion of the tumor was a large collection of pus. The tumor was a genuine multilocular cystic one, the main cyst being nearly, if not quite, as large as a two bushel sack. Externally the surface is smooth, except where broken by the main adhesions and the numerous smaller bands running from the surface of the peritoneum to the surface of the sack; internally there were numerous smaller sacks, from the size of a pint to that of a mustard seed; of these latter there must have been thousands.

Now I will venture an opinion as to the nature of the tumor's base. I believe that the solid portion of the tumor became so by gradual deposits; that originally however, it was composed of cysts filled with cystic material.

The solid part of the tumor was subdivided by membranes the same as the smaller cysts, except where the collection of pus above mentioned had broken down the partition membranes. Some of the cysts contained a thin fluid, others jelly-like material, and some again solid matter—all these however were inclosed in the one large sack.

Our patient recovered rapidly and in the course of eight weeks was able to leave her bed. She has been doing more or less housework ever since that time, and is now enjoying better health than she has before for thirty years.

Art. 11.—Inaugural Address.

By REUBEN A. VANCE, M. D., Gallipolis, O.

Delivered before the Ohio Valley Medical Association at Huntington, W.Va., Nov. 8th, 1876.

Gentlemen: While duly recognizing the force of that usage which makes it incumbent upon me, as your President elect, to preface my entrance upon the duties of that office with some observations relative to the past history and future prospects of the Association, yet, until less than a week ago, I had hoped that through the excellent arrangements made by my distinguished predecessor, Dr. Knight, there would have been so ample a supply of addresses, that I could have been permitted to take the chair, with no other formality in the way of an address, than such as would involuntarily have arisen to my lips upon the assumption of so important and responsible a post of duty. Learning at that time from the prompt and courteous chairman of the Committee of Arrangements here, my friend, Dr. Wall, that I would be honored with an audience, many of whom would not be members of the profession, I determined to endeavor, even at that late hour, to do what I could to carry out the wish so often expressed by the Association—to make my remarks, as part of the public proceedings of the society, relate as far as possible, to those methods of acquiring professional knowledge, to the manner of determining the seat, and ascertaining the nature of disease which will serve to convey to those not of the profession, true, intelligible, and complete ideas relative not only to medical art and science, but also, to the studies and pursuits of medical men. Members of the medical profession often complain that their calling is one which the public does not comprehend — their services of a nature that the community cannot appreciate. Acknowledging the truth of this complaint, and appreciating the wisdom of the association in requiring its members to direct attention in the public exercises attendant upon their semi-annual re-unions, to subjects calculated to disseminate truthful ideas upon the relations borne to the community by its medical members, and reciprocally, to the medical men by the community, I shall occupy a little of your time in referring to one of the methods of investigating the disease which should be familiar to every intelligent adult, and to some of the morbid states revealed by its employment.

The instrument to which I allude, is the microscope, an appliance in which the constructive will of mechanics has made an approach to perfection far beyond that found in any other branch of workmanship. Without referring to details which would be useless to those familiar with the instrument, and unintelligible to those who are not, I will simply state that the most valuable additions to this implement as a means of research, have been made during the lifetime of those before me, and that since I entered upon the practice of medicine, the improvements have been such as to completely revolutionize microscopy as a branch of scientific investigation.

Were I to attempt to enumerate simply the different ways in which this instrument, with its wonderful power of making manifest the infinitely small, of revealing the hidden, and of disclosing the minute, was of use in practical medicine, I know that I would need much more of your time than I am willing to appropriate. But, before attending to the example of its usefulness which I shall adduce, let me briefly refer to a personal incident connected with the subject which I have never spoken of before, and which I bring up at this late day for reasons that I shall make known hereafter in another manner. It is this: some time during the early part of the year 1868, while I was serving as House Surgeon in Bellevue Hospital, Dr. T. Gaillard Thomas—whom all American medical men know as the author of the leading work in the english language on *Diseases of Women*—one of the attending physicians to that Institution came to my room in company with a friend, and requested the use of my microscope for a short time. The name of Dr. Thomas' companion escaped me at that time, but I have since learned that it is one well known to the profession. When the microscope was brought out, Dr. Thomas explained that his friend had been so much interested in the publications of Dr. Salisbury, of Cleveland, Ohio, that he had visited that city, and spent considerable time, studying under the direction of Dr. Salisbury. The *American Journal of the Medical Sciences*, I well knew, contained in its January number an article from the pen of the latter, describing "Two New Algoid Vegetations," one of which he claimed was the specific cause of syphilis, the other gonorrhœa, for I had but a few days before spent some time in examining the illustrations accompanying it, which portrayed the microscopic character of these vegetations. My interest was consequently excited when, all the preliminary arrangements having been made, Dr. Thomas requested me to prepare slides with specimens of blood, one to be from a man as healthy as possible, the other from a specific case; but, when they were ready for the microscope, not to designate the one from the other. I did so; but, if I remember correctly in regard to being requested not to designate the one from the other, instead of doing so, I gave the party in the room distinctly to understand, when I placed the slide containing the really healthy blood under the microscope, that it was a specimen from a patient in whom the evidences of specific infection were undoubted, and it was with this idea in his mind, that Dr. Thomas' friend examined it. He studied the field with due diligence, went over it again and again, and, at last, with evident chagrin, acknowledged that in that particular specimen there were no evidences of syphilis to be found, such as Dr. Salisbury had taught him to recognize. Then I gave him, as a healthy specimen, a drop of blood from a patient in ward 6, an old and well known case of syphilic necrosis of the bones of the skull. No sooner did this gentleman glance over the slide, than he announced that he had found the vegetations he sought for. The field of the microscope was dotted here and there with a number of structures which I shall not attempt to describe, but which, I can say, have been approximately represented by Salisbury in figure number 6 of the plate, which appears on page 24, of the January number of the American Journal of the Medical Sciences for 1868. Also, these appearances I have subsequently recognized in many cases, and the blood of a patient now under my care presents them in perfection. The fact that the evidences he sought for, and which he was so confident he would find, had been found indeed, but found in an inexplicable manner was distressing to the gentleman who conducted the examination. I found myself placed in an unpleasant situation, and sincerely repented making use of the deception I did. It is true that I acknowledged to Dr. Thomas at once, the wrong impression I had given his friend— who I may as well state, was Dr. Ephraim Cutter—but, as I begged him not to tell of the deception practised, I am not sure that Dr. Cutter ever knew the true reason why his demonstration resulted so disastrously. But, be that as it may, the fact we are interested in is this: The microscope is a true impartial and reliable witness, and if occasionally, the evidence it renders is directly contrary to that which you expect, the fault is not with the instrument, but will doubtless be found in the way in which the matter subjected to examination are prepared. The incident I have just alluded to, made a deep and abiding impression upon my mind. About three years ago an opportunity for examining the blood of a large number of patients suffering from chronic cerebral diseases, presented itself to me, and was gladly improved to the best of my ability. For more than six years, the almost daily use of the microscope in the examination of patients, has taught me its value, although the nature of the evidence revealed is such that in order for an observer to be able to record and transmit his experience he must possess exceptional gifts as a draughtsman. Still, this is not the only way in which such a familiarity with the evidence revealed by the microscope as comes from long use of the instrument, can be communicated. It is fortunate that, from the number and permanence of the characteristic appearances revealed by its use, one skilled in its employment can readily and easily point out to others, the signs of disease which it reveals.

There is one disease, however, our knowledge of which is due so entirely to the microscope, that a brief reference to it, on the present occasion seems called for, for I know of none which would better illustrate the value of the community of effort and of labor, so characteristic of the Medical Profession. This is the disease called *Trichina Spiralis*. *Trichina Spiralis*—the disease, not the name—was first mentioned by Mr. Hilton, of London, in a paper read before the session of the Medico-chirurgical Society, held on the 23rd. day of January, 1833, and published in the Medical Gazette during the following month. In this memoir is detailed the fact that Mr. Hilton, while making the *post-mortem* examination of a man aged about 70 years, at Guy's Hospital, found a great number of white corpuscles, scattered through the muscles of the chest. Shortly afterwards Mr. ——, now Sir James Paget, found similar concretions in the body of an Italian at St. Bartholomews, some of which he presented to that prince of naturalists, Mr. Richard Owen, who brought the matter to the attention of the Zoological Society, in a paper which appeared in the Medical Gazette during April 1835. In this paper the author describes the little white points as cysts, each containing a microscopic worm, from the slender, hair-like, coiled-up state of which, he was led to designate it, the *Trichinae Spiralis*. In the following year Mr. Owen collected all the cases of the disease occuring in the human subject which he could hear of, and gave them — fourteen in all— to Mr. Bureaud Riofrey for publication. Included in this number are the cases of Wood and Harrison—the former, one, the latter six cases. The case of Dr. Wood, of Bristol is described as Acute Rheumatism, with Pulmonary and Cardiac complications, but on post-mortem examination, a number of trichinæ were found in the muscles. The case was observed in 1835, and is the first instance in which the symptoms during life and supplemented with the details of a post-mortem examination. For nine years medical publications contain no references to Owen's disease. In 1845, Dujardin began to study the trichinæ—his example was speedily followed by others interested in the habits of animal parasites, and Herbst, in 1845, and Gurlt in 1849, found them in the cat. Other animals —as rats, mice and badgers— were also found to be infested with them. The attention paid to the affection was on the wane, when the discovery of an American again brought the subject forward, and invested it with renewed interest. This was the announcement of Professor Joseph Leidy, in 1847, that he had found the parasite in pork. In 1851 Luschka made valuable contributions to the anatomy of the worm; the publications of Küchenmeister and Virchow, Henle and Bristowe soon followed; and a discussion relative to the position of the parasite in the animal scale was warmly waged by the two former.

Such was the state of the knowledge of this disease possessed by the medical profession, in the beginning of 1860. On the 12th day of January of that year, a sick servant girl was admitted to a hospital of Dresden, and placed under the care of Dr. Walther.

Her history showed she was 20 years of age, had been sick for three weeks, and for nine days had been bed-fast. She complained of a burning fever, lassitude, thirst, and pains in the abdomen, with other symptoms simulating typhoid fever. Shortly after she was admitted, new symptoms negativing the hypothesis of enteric fever were developed—she suffered excruciating pains continuing without intermission day and night, And located principally in the extremities, together with violent spasmodic contractions of the muscles of the arms and legs. The legs were firmly flexed upon the thighs, and the thighs upon the body, during the spasms, and all attempts at extension excited great pain. Later, œdema of the legs set in. followed by pneumonia, with typhoid symptoms, and on the 27th of January, the patient died, leaving her medical attendants in a state of great uncertainty as to the real nature of the disease from which she suffered. The revelations of the dead-house, were accordingly looked for with great anxiety, by the physicians who had seen the case, and Zenker, who had watched the patient from the date of her admission, made the autopsy in the presence of a number of the members of the profession. The muscles of the arm, the parts first examined, were pale-red in color, with a speckled appearance. A small piece of muscle was placed under the microscope, and to his great astonishment Professor Zenker saw an immense number of free trichinæ in the muscular parenchyma "assuming all postures" says Dr. Hun "and giving the most incontestible evidences of vitality." Repeating his examinations, he found all the muscles so studded with trichinæ, that often as many as twenty could be counted in one field of the microscope. None of the usual lesions characteristic of the tyhoid fever were discernible, and the penetration of the trichinæ into the muscles was found not only to have induced the violent muscular pain, but to have been the true cause of death. Further inquiry revealed the fact that the patient had been brought from the country, and that shortly before she was taken sick, a hog was slaughtered at the house where she lived. Zenker obtained a ham and some sausages —all flesh of this animal—and upon microscopic examination found multitudes of trichinæ. The butcher who dressed the hog, and several of his companions, ate of the raw sausage meat. All who did so were prostrated with rheumatismal and typhoid symptoms. The evidence was strong that the unfortunate young woman also partook of the raw meat, but of the six or seven who did so, and were attacked in the manner indicated, the young woman was the only one who died.

The meat which Zenker secured, together with parts of the muscular tissue removed from the dead girl, were made to solve many of the points which before were in dispute. Some of the flesh was sent to Virchow, who found that when a rabbit was fed upon flesh containing trichinæ the animal became emaciated and feeble during the succeeding three or four weeks, and died about the fifth or sixth week, with its muscles filled with trichinæ. In this manner Virchow obtained five generations of trichinæ.

When we reflect upon the importance of pork as an article of diet, we can readily account for the excitemeut which ensued upon the occurrence of this case. The interest was not limited to the medical profession—all classes of the community were excited over the matter. A number of our most valued treatises on the subject emanated, from the interest aroused by the death of this unfortunate Saxon girl. Our knowledge of the parasite approaches perfection, and, as it is a subject with which all intelligent people should be familiar, I will endeavor to state in nontechnical language what every one should know relative to the state in which trichinæ exists in the body, and the transformations which they successively undergo during their existence. If time permits, I may next describe the symptoms and signs by which the physician recognizes a case of trichinosis in the human being, and present some facts in reference to the mortality of the disease which will tend to diffuse ideas that are more nearly correct, than those which now prevail.

A question often asked is this: How do the trichinæ exist in an animal? In answering it, I will strive to confine myself to those matters of fact concerning which there is no difference of opinion, and will avoid, as far as possible, all disputed and unsolved problems. Thus, when an animal contains trichinæ in its muscles, they exist there, embedded in a capsule composed, internally of a smooth membrane, externally, of a deposit of calcareous salts, disposed in the shape of a layer. When the flesh, with these trichinæ embedded in it, is eaten by any carnivorous animal, the gastric and intestinal juices operate upon this envelope, dissolve it, and set free the contained worms, which grow rapidly in the *habitat*, and soon reach their completely developed state. The males and females mingle together, and embryos are soon born.

With the performance of the generative function, the trichinæ die, and their remains form part of the materials excreted from the bowels. The young embryos, however, perforate the walls of intestine in great numbers, penetrate into the abdominal cavity, and from thence, pass into all the muscles of the body. When they arrive at their journey's end, they lodge in one of the fibres of the muscles, become encysted and remain quiescent for an indefinite period of time; they die in this condition unless the animal containing them is eaten in its turn, when the trichinæ pass through a cycle of existence similar to that of the worms which engendered them.

As these different stages are important, I will review them briefly, following, in outline, the account given by Dr. E. R. Hun, in the transactions of the New York State Medical Society for 1869. We will glance first, at the formation of the cyst. The cyst wall is a double envelope, the external layer of which is formed from the sarcolemma of the muscular fibre in which the worm is lodged, and which is terminated at both its extremities by an elongated fibre; the internal layer, a production of the trichinæ itself, is of oval form, and possesses very thin and transparent walls. Calcareous matter is soon deposited in the membranous envelope of the trichinæ, and after the process has continued for a time, the parasite is entirely concealed from view. Each cyst usually contains but one inhabitant, who has ample room for motion, but when, as occasionally happens, two or even three worms are domiciled in the same cavity, their facilities for locomotion are much impaired. How long the trichinæ can live so encysted, is not positively known—they have been found alive after many years seclusion. However they do finally die, and then death is followed by the deposition of earthy matter in the body of the worm, and in the cavity containing it, so that at last there is a solid mass of calcareous matter, which subsequently undergoes segmentation, and breaks up. The habitual location of the encysted trachina is in the muscles of the trunk and limbs, especially near the insertion of tendons and aponeurosis; they are even found in the muscles of the eye, and internal ear, but accumulate in large numbers in the diaphragm, the posterior muscles of the neck, the biceps, deltoid etc. The heart thus far, has remained free from the adult worm, although embryos have occasionally been found in its substance. The number of trichinæ found in the muscles varies according to the quantity of infested meat ingested. It has been estimated that the body of a patient may contain many million. Pieces of pork, no larger than would suffice for a single mouthful, have been known to contain from 5000 to 7000 adult trichinæ.

Intestinal Trichinæ.—The digestive fluids dissolve the calcareous salts which enter into the formation of the cyst, so that when a person swallows meat containing these cysts—mastication having reduced it to a pultaceous mass—the capsules readily yield to the solvent power of the gastric and intestinal juices, and the trichinæ are at once set free. When thus released in the digestive tube the animal measures from one-fiftieth to one twenty-fifth of an inch in length. They at this time possess no organs for the propagation of the species. Within twenty-four hours they approach complete development—ova can be distinguished in the egg-sac of the female, and spermatic cells are apparent in the male. The males at this time are about one-twelfth of an inch long and are to be distinguished from the females by a forked projection at the end of the tail. The females are more than twice as large as the male, and when they have remained from five to six days in the intestine, the result of impregnation is apparent in the emergence of myriads of embryos from the ovisac of the female. These little ones are from the three-hundredth to the two-hundredth of an inch in diameter, and one female may give birth to several thousand young. With the processes of fecundation and reproduction terminate the lives of the adult trichinæ, and their remains form part of the refuse materials discharged by the intestine. After emergence from the cyst, the life of the trichinæ rarely exceeds two weeks. It is a curious fact that the number of females is always greatly in excess of that of the males.

Migration of the Embryos.—No sooner are the minute embryos cast upon their own resources in the intestinal canal, than they fasten upon, and penetrate the membranous walls of that tube. When the young trichinæ have penetrated the intestine, they are found in large numbers in the serous cavities, especially in the peritoneum and pericardium, in the spleen, mesenteric glands and the diaphragm—in the latter, many become encysted and remain permanently. Continuing their emigration, they finally reach the premature muscular fibrils of the different voluntary muscles of the trunk and extremities. It is during this period, while the trichinæ are moving, that the patients complain of pain. The embryos which, at the time of their birth averaged only about the two-hundred and fiftieth of an inch in diameter, gradually increase in size for six or seven weeks, deriving their nutriment at the expense of the muscular fibre in which they are lodged, until they are simply inclosed in a tube formed by the myolemma. By this time they have attained between one-fiftieth and one-twenty-fifth of an inch in length, and their growth is arrested. They now become surrounded by a capsule which is, in good time, enveloped in a deposit of calcareous matter. When thus encysted, they may live for a number of years, and there are cases on record where they survived thirteen years in an encysted condition, after which they were capable of producing trichinosis in rabbits.

It is apparent from the foregoing that trichinæ pass through a cycle of existence which may be divided into three distinct periods, viz.: first, the period when they exist as encysted larvæ; second, the period of development and procreation; and third, the embryonic state.

Elaborate experiments have been instituted to determine the degree in which different animals are naturally infected with trichinæ. Some curious results were thus obtained. For instance, the experiments of Pagenstecher show that the cat undergoes trichinization easily and completely, but that the dog and the fox cannot be so affected. The young embryos become developed in the digestive organs of the latter, but are not able to pass through the membranous walls of the intestines, and consequently, are voided, together with the remains of their projenitors. Sheep can be trichinozed but only with great difficulty—the same is true of the calf—but all attempts upon the bull, the ox, and the cow have resulted unsuccessfully. Swine are very readily affected. The general result of all these investigations is to the effect that so far as the danger of infecting human beings is concerned the meat of the hog is the only variety of edible flesh liable to communicate it.

The careful investigation of cases of trichinosis—a disease so readily recognized, and so widely diffused that it has fallen under the observation of almost every physician—enables the physician to present an outline of the disease sufficiently exact to enable those who have personally examined a case, to recognize it, when brought before them. The results produced by the ingestion of the infected meat will necessarily vary according to the number of worms swallowed, the impressionability of the patient, and the time which has elapsed since the invasion. For purposes of convenience the disease can be divided into four stages, the characteristic features of which are as follows:

First Stage.—This period lasts from eight to ten days, and it is during this time that the trichinous meat introduced into the stomach, passes into the intestines, the cysts have their enveloping earthy matter walls dissolved while their membranous investments rupture and release the larvæ, which grow rapidly and soon complete their development. It is only in the minority of cases that any symptoms are experienced during the first day—some, occasionally complain thus early, of nausea and indigestion. These symptoms, together with anorexia, thirst, alvine dejections and fever, alternating with diarrhœa and febrile remissions, as a rule, do not become marked until the fourth day. This period corresponds with the phenomena of the evolution of the trichinæ, yet the symptoms narrated are those of any ordinary irritation of the stomach and bowels—in fact, it is from the mechanical irritation of these worms whose number is prodigious, that the symptoms of gastro-intestinal inflammation are produced.

Second Stage.—The period corresponding to the birth of the embryos forms the second stage. Millions of these minute embryos perforate the intestinal walls and aggravate all the symptoms; the fever increases, the pulse beats from 110 to 140 per minute, the capillary circulation is obstructed and irregular, œdema of the face, first manifested in the eye-lids, sets in; the lips and tongue grow brown and become fissured, the thirst becomes extreme and unquenchable, the perspiration is abundant, and diarrhœa alternates with constipation. This period lasts from eight to ten days, and during its continuance, the mind is clear and collected.

Third Stage.—The advent of the third stage is marked by muscular pains. The embryos having pierced the intestines and passed over the serous membranes of the abdominal and thoracic cavities, attack the muscles of animal life. Then commence the muscular pains, which rapidly increase in extent of area implicated and in intensity. When the pains have continued for some time the acme of a paroxysm is accompanied by spasmodic contraction of the muscles of the upper extremities, the arms are semi-flexed, and every effort to extend them calls forth cries of distress. Hun insists upon a symptom observed by his father—the fact that a patient walks upon his toes, as if unable to let his heels down to the floor. Respiration is impeded from implication of the thoracic muscles; the movements of the tongue and the functions of the larynx are also interfered with by the presence of the parasite in the muscular tissue of both organs; while, from confinement to his bed, and doubtless, also from the contamination incident to the disease, bed-sores form upon the parts pressed against the bed; œdema increases (ascites developes) the inferior extremities may swell to an enormous size; the secretions become scanty; wakefulness is present to a distressing extent; perspiration is often profuse and offensive; the pains continue without abatement; but the mental processes remain unclouded. Finally, in fatal cases, all the symptoms become aggravated, the diarrhœa augments, the thirst becomes unquenchable and delirium developes. This period may continue from four to eight weeks, or even longer, but generally, the vital powers yield, and the patient dies from exhaustion within from thirty to forty days from the onset of the disease.

Fourth Stage.—There are, fortunately, many cases in which, notwithstanding the severity of the symptoms in the third stage the patient nevertheless does recover. In such cases, after suffering for a number of weeks the agonies incident to the third period of the disease, the trichinæ gradually become encysted, and as this process takes place, their symptoms ameliorate and, one after another, gradually disappear. This subsidence of the disease constitutes its fourth stage, and corresponds with the encapsulation of the trichinæ. The gastric symptoms improve, the appetite reappears, delirium subsides, diarrhœa ceases, and the fever, muscular pains and dropsy diminish and ultimately disappear. With the development of the cysts which enclose the trichinæ, the parasite is removed from direct contact with the muscular fibres, being embedded in capsules which increase in thickness, become encrusted with calcareous salts and remain indefinitely as foreign bodies, without occasioning any defect in movement.

The unexpected extent to which my remarks have been drawn will prevent my saying more in relation to this disease, than that its mortality has been greatly over-estimated. The difficulty of diagnosis is another element which has complicated the question of its fatality. A rough estimate founded in part upon such statistics as I could collect, but modified likewise by personal acquaintance with the disease in its milder as well as its most serious form, leads me to place the proportion of fatal cases to those which recover, as three to ten. Yet there are so many circumstances which render the most careful calculations untrustworthy, that this approximation of thirty per cent. must be taken as provisional and tentative.

The value of the microscope in the recognition and investigation of such a disaster as trichinæ spiralis, is self-evident. But there are many other affections which resemble it in the fact that had it not been for the microscope, their very existence would not have been known. Thus, that whole class of diseases—are daily growing in importance—which is characterized by the presence, in undue quantity, of white corpuscles in the blood, would never have been known without its aid; in like manner, those cases of skin disease, in which parasitical growths are important factors, could not have been discriminated without it; while those questions in legal medicine so readily solved by its employment, could never have been answered had it not been in existence. To one or two of the questions of Medico-Legal Science I shall next direct your attention, and first of all, we will glance at the use of this instrument in the recognition of blood-stains—a matter often of the greatest moment in the administration of justice.

The photograph which you now have before you, illustrates how plainly certain varieties of mammalian blood can be recognized by the size of the corpuscles. It occasionally happens that the determination of the character of a particular discoloration is of the greatest importance in the administration of justice In one case in which I was a witness it was known that a certain paper, of vital importance to one of the parties had been deeply stained with the blood of the wounded man who had signed it. One of the issues of the trial rested upon the recognition of the character of a stain on a discolored document which was submitted as the original, but the authenticity of which was denied by the other party. In this case a minute portion of the blackened mass was removed and placed on a glass slide, where it was moistened with a drop of water to which glycerine had been added until a specific gravity of 1028 had been attained. The solution thus added is of the same degree of concentration as blood-serum and, when applied to dead clotted blood, tends to expand the blood corpucles to a degree that renders this recognition comparatively easy. In the case attended to, this solution was permitted to slowly flow under the upper edge of the thin slip of glass which covered the particle of crust removed from the document in dispute, and as it emerged from the lower edge of the glass, it was absorbed by a piece of blotting paper. Quite a quantity of coloring matter came away, and ultimately, there was left upon the slide a mass in which the corpuscular elements of blood were plainly distinguishable—thus demonstrating the fact that the discoloration of the paper in question was due to blood. Examined with an eye micrometer after the addition of a weak solution of iodine, the corpuscles which had approximated a circular form were found to vary in diameter from the thirty-one hundredths to the four thousandths of an inch. In view of the microscopical appearances I have just described, there was ground for no other opinion than that the discoloration was caused by effused blood, and that that blood came from the vessels of a human being. Did time permit, I could detail from personal experience, a number of cases in which the microscope has rendered a valuable service in the recognition of blood stains,— one instance in particular, in which its aid enabled me to discriminate between blood, supposed to have been wiped from a knife, and that which normally forms part of a physiological excretion. Another, that presented many points of interest aside from the recognition of the origin of the blood — whether from a man or beast—is so complicated with questions relative to the power of an expert to determine, by chemical manipulation and microscopical examination, the animal from which a given specimen of blood is taken that it will be impossible to do justice to it in the time still at my command. I will therefore conclude by citing the following illustration of the value of the microscope in the detection of crime, which I quote from the valuable "Hand Book of Medical Microscopy" by Dr. Joseph G. Richardson of Philadelphia. It is an account of a trial for murder which occurred at Norwich, Eng., some time in 1850, under these circumstances: A female child, nine years of age, was found lying on the ground in a small plantation, quite dead, with a large and deep gash in the throat. Suspicion fell upon the mother of the murdered girl, who upon being taken into custody, behaved with the utmost coolness, and admitted having taken her child to the plantation where the body was found, where the child was lost while in quest of flowers. Upon being searched, there was found in the woman's possession a large, sharp knife, which was at once subjected to a minute and careful examination. Nothing, however, was found upon it, with the exception of a few pieces of hair adhering to the handle, so exceedingly small as scarcely to be visible. The examination being conducted in the presence of the prisoner, and the officer remarking, "here is a bit of hair on the handle of your knife," the woman immediately replied. "yes, I dare say there is, and very likely some stains of blood, for, as I came home I found a rabbit caught in a snare, and cut its throat with the knife." The knife was sent to London, and, with the hair, subjected to a microscopic examination. No trace of blood could at first be detected upon the weapon, which appeared to have been washed; but upon separating the horn handle from its iron lining, it was found that between the two, a fluid had penetrated which turned out to be blood—certainly not the blood of a rabbit, but bearing every resemblance to that of the human body. The hair was then submitted to an examination. Without knowing anything of the facts of the case the microscopist immediately declared the hair to be that of a *squirrel*. Now, round the neck of the child at the time of the murder there was a 'tippet' or 'victorine' over which the knife, by whomsoever held, must have glided; and this victorine was of *squirrel's fur!*

"This strong circumstantial evidence of the guilt of the prisoner was deemed by the jury sufficient for conviction, and, whilst awaiting execution, the wretched woman confessed her crime."

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Bi-Monthly Abstract.

An Abstract of Current Contributions to Obstetrics, Gynecology and Diseases of Children.

Condensed by EDWARD B. STEVENS, M. D.,

Prof. of Materia Medica in the Syracuse University, New York.

PLACENTA-PRÆVIA. — Dr. Parvin, of Indianapolis, strongly urges the importance of terminating pregnancy as speedily as possible after the existence of placenta prævia has been distinctly ascertained. He quotes as follows from Dr. Meadows: "It may be laid down as a rule of general application, and one too, which ought to be rigidly observed, that no matter what the period of gestation, any large loss of blood demands the termination of pregnancy; for to leave a patient to be subjected to another attack, coming on as it would do without any warning, is in truth to place her life in imminent danger." Dr. Parvin proposes to induce premature labor by the use of either the Molesworth's or Barne's dilators in preference to the use of the tampon. He alludes to one case of his own, the patient advanced to seven months pregnancy, where premature labor was induced with the Molesworth dilator—saving the lives of both mother and child. He also shows the ease and rapidity of the process in that. Dr. Thomas "induced labor in this way—and delivery was accomplished in an hour and a half." Dr. Parvin very well shows that while the various modes of "packing vagina" are "treacherous aids," the use of Barne's dilator lessens the danger by simulating the influence or action of the bag of waters in natural labor.—[*Amer. Practitioner*, June and Oct., 1876.

NON-PUERPERAL HEMORRHAGES.—Prof. W. H. Byford read a paper before the International Medical Congress, Sept , 1876: He described the uterus as naturally a hemorrhagic organ; (is this generally and well understood?) the menstrual changes depending on the ovarian reflex nervous influence exerted unremittingly through the genito-spinal centre, these changes consist of hypertrophy at the commencement of the menstrual flow, denudation of the mucous membrane, and the involutions of that period. He referred at length to the various constitutional and local causes producing disturbances of harmony and profuse flow as a result, and afterwards described the treatment which is curative, removing the pathological conditions; palliative, such as will stay the bleeding until radical treatment can have its effect.

In the discussion on this paper, gallic acid was generally acceded to be the most desirable astringent; dose, grs. x—xx every hour.—[*N. Y. Med. Record*, Sept. 30.

ELECTROLYSIS IN OVARIAN CYST.—Dr. F. SEINCLEDER read a paper to the International Med. Congress. He gave a short statement of six cases of ovarian tumor, that he had successfully treated by electrolysis. No inflammation, no pain, no adhesions were caused; his patients were never put under chloroform, nor confined to bed. The cures required from one to five months; the patient is not deprived of one of her most interesting organs. He concludes emphatically: It is a case of conscience to try electricity, before ovariotomy is resorted to, as a patient will not find herself in a worse condition for the operation if electrolysis prove unsuccessful, while a little delay is an insignificant evil in comparison to the risks of ovariotomy.—[*N. Y. Med. Record.*

CONVULSIONS OF CHIDREN, DEPENDANT ON A HIGH TEMPERATURE OF THE BODY.—Dr. T. K. Holmes, of Chatham, Canada, believed that in many cases the convulsions are directly attributable to the effect of high temperature on the nervous system. The following propositions have been confirmed by experience; that extreme nervous susceptibility of children under ten years of age, predisposes them to convulsions; that bodily temperature of 103° (F.) and over, tends to produce them; that their severity bears a direct ratio to intensity of fever; that they are most apt to occur at the outset of the morbid attacks; and that whatever reduces temperature arrests or modifies the muscular spasms. Thinks the indications for treatment can be accomplished more readily and safely by external than by internal medication, and advises the use of the bath. Several cases treated by the author, are mentioned to show that in simple pyrexia, without zymotic influence, convulsions were caused by heat and promptly controlled by the bath. Tepid water is first employed, the temperature being gradually reduced, with addition of ice water, to about 60° and until the axillary temperature becomes nearly normal, the patient being then taken out and put in blankets. The temperature of the body is not to be reduced in the bath to below the standard of health. This treatment is also available in diseases attended by high temperature without convulsions.

The chairman (Dr. Barnes, of London) said the rise in temperature was due in these cases to nervous irritation or blood poison. It would be interestiug to know whether blood poison, or hot blood acting on nerve centres, produced convulsions; but with rise of temperature there is unquestionably increasing liability to eclampsia.

Dr. Rochester, of Buffalo, said it was fashionable to attribute increased tissue change, etc., to excessive heat, but thought other meteorological influences might be at work, when the sky is clear and temperature very high, cholera infantum is not so prevalent as when the air is loaded with moisture and the sky cloudy, though the thermometer may be lower.—[*International Congress*, *Med. Record*.

OVARIOTOMY IN THE AGED—A SUCCESSFUL OPERATION.—Dr. C. Richards, of Joliet, Ills., operated for ovarian tumor in April, 1876, upon a woman sixty-five years old, resulting in complete recovery.—[*Chicago Med. Journal and Examiner*, Sept., 1876.

SPONGE RETAINED IN THE VAGINA TWO YEARS.—Prof. E. W. Jenks, of Detroit, removed a sponge from the vagina of a patient aged sixty-two, there was a profuse, offensive, sanious vaginal discharge, leading the friends to suppose the case was one of cancer uteri. The sponge was probably inserted at least two year's previous as a support for prolapsus uteri, and forgotten.—[*Chicago Med. Journal and Examiner*, Sept., 1876.

ERGOT IN FIBROID TUMORS OF THE UTERUS.—Dr. J. B. Crandall, of Sterling, Ills., reports a case. Patient took three doses 30 grs. each, of Squibb's fl. ext. ergot during the day Dec., 20, 1875, at the suggestion of Prof. Byford of Chicago. On Jan. 11, following "the patient commenced to pass from the uterus small masses of fibrous growths, ranging in size from that of a small chesnut to an English walnut. There were also portions of fleshy substance that came away that evidently belonged to a much larger tumor, as the edges were rough and uneven, showing they had been torn from the main tumor." Although the volume of the uterus was much diminished the patient was directed to resume the ergot for a time, but Dr. Crandall thinks the cure was completed with the first three doses taken Dec. 20.—[*Chicago Med. Journal and Examiner*, Aug., 1876.

STERILITY OF WOMAN CAUSED BY DISEASE OF THE SEXUAL APPARATUS.—O. Von Grunewald (*Arch. f. Gynak.*—*Amer. Jour. Obst.*, June, 1876) believes the almost unique cause of sterility to be disease of the tissues of the uterus, incapacitating it for nourishment of the ovum. Among 900 married women suffering from disease of the uterus, and not past the menopause, fifty were sterile, and in over fifty per cent. the disease consisted in an inflammatory affection. It is well known that pregnancy may be interrupted by acute diseases—it is probable that chronic general debility impairs the developmental powers of the ovum. In endo-metritis the cervical canal is generally wider than usual; menstruation is not disturbed; the secretions are little dangerous to the spermatozoa—as, for instance, in carcinoma uteri—yet the disease leads to sterility as soon as the greater portion of the mucous membrane of the corpus uteri is affected. Meso-metritis obstructs the nutrition of the ovum in proportion to the mass of tissue involved. The para and peri-metritis and frequent complications of other inflammatory forms may be attributed at least ten per cent. of the sterile women. They occasion disturbance alike of the nutrition of the organ and its position, beginning often in the first weeks of marriage, and having frequent accessions. Stenosis of external os never exists idiopathically, but remains from former inflammatory processes, the same as conoid cervix, and these only occasion sterility. Slitting heals the vice of nutrition, and thereby (but seldom) the sterility also. Malformations of the cervix always develop themselves through previous catarrhal or inflammatory impressions. Inasmuch as the disturbing influence of these diseases is most felt when the greatest claims are being made upon the uterine mucous membrane for attachment and nutrition of the ovum, so it is found that then, *i. e.*, in the third and fourth months, the most abortions occur, and may easily become habitual.—[*Detroit Review Med. and Pharm.*, Aug. 1876.

PUERPERAL FEVER—IS IT GENERALLY SPREAD BY THE MEDICAL ATTENDANT?—This is a question of far-reaching import. Dr. F. Churchill (*Brit. Med. Jour.*, March 25, 1876) presents the following facts:

1. We know that a person going directly from a post-mortem examination to a lying-in case may excite puerperal fever in that patient. Surely this opportunity for mischief is of very infrequent occurrence.

2. We know that medical men attending cases of erysipelas have excited puerperal fever from attending lying-in women at the same time, especially if due precautions had not been taken.

3. We know that nurses going from attending on puerperal fever to lying-in women have conveyed the disease.

4. We also know that in some cases the disease has followed in the track of some particular doctor, and this in spite of minute and thorough precautions. There is no explanation of such cases, and they rather show the failure of quarantine.

5. In the course of forty years of practice I have had puerperal fever cases, but the most rigid inquiry has failed to show me any connection between any two patients. My precautions were, (*a*) never to attend a confinement in the clothes I had worn at my visits. (*b*) I always saw recently confined patients before seeing the fever cases, and on returning home always changed my clothes. (*c*) I was scrupulously careful about the frequent and thorough washing of my hands before leaving the patient's house. These precautions were certainly successful with me.

6. If the ordinary attendant is to be put in quarantine, what about the consultant? Is he not likely to carry the infection? The doctor hopes that before the portability of the disease is assumed, some effort will be made to collate examples to show how often, notwithstanding due precautions, the sequence of the disease proves it to have been conveyed from one patient to another by a third person. If well authenticated cases of this kind be numerous, then puerperal fever is more infectious than typhus, scar-

latina or even plague, and the doctors must go into quarantine. If not, neither the profession nor the public need be alarmed, and with proper precautions the doctors may pursue their avocatons in peace and security.—[*Ibid.*

RETAINED PLACENTA AFTER ABORTION. — Dr. H. Spondly (*Lond. Med. Record*, April 15, 1875) from his personal observations concludes:

1. One cannot depend upon the placenta being always spontaneously expelled with the fœtus, and adhesions are unfrequent.
2. A retarded delivery of the placenta is always accompanied with considerable danger, especially from repeated floodings, which in the most favorable circumstances delay convalescence.
3. It is strongly to be recommended to remove the placenta with the fingers in the early stages, when the cervix is dilated sufficiently to admit at least one finger.
4. Injections of carbolic acid, diluted in warm water, should be used to remove portions of placenta which may be left in utero. These retained portions are much more frequent in ordinary abortions than with this operation.
5. Care should be taken to use no force to enter the uterus when it is closed without previous dilatation.
6. Midwives should be instructed to send for medical help whenever the ovum is incompletely expelled, as then the uterus as a rule would be found permeable.—[*Ibid.*

"REGIMEN OF INFANCY AND MOTHERHOOD."—Dr. Chambers writes: "The child should be put to the mother's breast, as soon as she wakes from her first sound sleep after its birth; and the waiting for three or four days is "an old-fashioned relic of the days of drugging when it was considered wrong that the young bowels should be relaxed by the colostrum of the first milk, but right that they should be griped with castor oil." The education of the infant must begin immediately after birth. It has to be taught not to be always sucking whenever the whim takes it, or the mother comes in sight." Whenever possible, in the event of failure of the mother's supply, Dr. Chambers prefers "the fresh cow's milk, goat's milk, or Swiss condensed milk," instead of resorting to a wet nurse.

"Cow's milk should at first be mixed with half its bulk of soft pure tepid water, in each pint of which has been suspended a drachm of "sugar of milk" (which is procurable at any chemist's—being used for grinding up powders) and two grains of phosphate of lime, finely powdered. If the milk has been partially skimmed, as is often the case in cities, then a good table-spoonful of cream should be added to each pint, to make the mixture equal to human. If it has not been skimmed, a couple of teaspoonfuls of cream will be sufficient. The advantage of using goat's milk is that the animal can be brought up to the very nursery even in cities, and will supply nourishment directly to its little master's lips if called upon. Children do not seem to dislike the peculiar taste. No inconvenience has as yet been proved to arise from the Swiss milk ("condensed") but at the same time no superiority to fresh cow's milk has been confirmed; as it is already sweetened in the preparation, no addititional sugar is required; but care must be taken to dilute it sufficiently to make it resemble not ordinary milk but milk and water. Laputa never devised anything more preposterous than "Liebig's food for infants."

"The best diet for an infant during the first six months is milk alone. It is true, man is a tough animal, and can stand with impunity much rough usage, and therefore a vigorous baby often seems none the worse for a certain quantity of farinaceous food; but the first appearance of flatulance, gripes, screaming, ill temper, or other ways infants have of complaining of dyspepsia, should make the nurse desist from these attempts to hurry on natural development. It is only when the coming teeth are on their road to the front that the parotid glands secrete sufficient saliva to digest farinaceous food. When dribbling begins then is the time to begin with the various preparations of these substances bountifully supplied by nature and art. Till then anything but milk given to a healthy baby must be tentative and considered in the light of a means of education to its future dietary, and must not take the place of milk."—[*American Practitioner*, Jan. 1876.

TREATMENT OF THE VOMITING OF PREGNANCY BY MECHANICAL APPLIANCES TO THE OS UTERI.—Some time since the attention of the profession was called to a method of arresting the sickness of pregnancy by dilatating moderately the os uteri. The effect of dilatation was brought to light through its application for the purpose of bringing on abortion. It was discovered that the vomiting ceased under these circumstances, and gestation continued undisturbed. To explain the phenomenon various suggestions were made, one of which was that "dilatation of the neck detaches the membranes over a certain space, and prevents the twitchings or distension of the internal orifice." A French obstetrician alleges that he has obtained the same results from the simple application of a plug of wadding into the vagina, which acts, he supposes, by "preventing the shaking about of the womb." Rather a fanciful explanation, we should say. A more rational supposition will suggest itself to most minds, namely: the principle of counter-irritation—the same principle which enables a blister on the surface of the body, under certain circumstances of nervous excitement and wakefulness, to act as anodyne and induce sleep.—[*Pacif. Med. and Surg. Journal*, Jan., 1876.

STATISTICS OF MIDWIFERY.—Dr. Dolan, of Yorkshire, Eng., (*Med. Press and Circular—Half-yearly Compendium*), gives these figures as the results of his obstetric practice for twenty years:

Number of accouchements	1433
Forceps used in	40
Craniotomy	5
Placenta previa	5
Twins	13
Deaths	9

Dr. Dolan adds the following extraordinary remark, the second clause of which not one medical man in a hundred would be likely to believe without some qualification: "I have found that my deaths occurred in the simplest cases, and that invariably patients considered bad made a good recovery."—[*Pacif. Med. and Surg. Journal*, Sept., 1876.

DEFECTIVE UTERINE INVOLUTION. — Dr. Edward John Tilt thinks we have in this "the substratum of diseases, and the soil on which they grow." For my present purpose, he says, it will suffice to remind the reader, that although the contraction of muscular fibre may help the process, uterine involution depends on the conversion into fatty products of no longer wanted muscular tissue and on the disposal of these products by the blood, while gradually a new womb is reconstructed upon the original pattern. Uterine involution should partake of the slowness, the steadiness and the painlessness of chemico-vital processes, and instead of being promoted—it is interfered with by after-pains the spasms and cramps of the puerperal womb, this normal rate of involution may be exchanged for one so rapid that Schrœder has seen it set up fever, and powerful enough to remove most of the muscular tissue, so that the walls of the womb were found no thicker than those of the intestine. This super-involution of the womb is so rare that I have not met with it, whereas defective uterine involution, or sub-involution is of frequent occurrence, and the object of this communication is to show how it originates and fosters uterine diseases.

Again, he states: "Debility should be the first thought of the practitioner, as a frequent cause of defective involution, for the early exhibition of some preparation of iron often visibly improves the appearance of the patient, and by dispelling uterine congestion it promotes involution, when however, strength does not follow the use of tonics, and when, a few weeks after delivery, the patient complains of bearing down sensations, pelvic distress, and muco-purulent or bloody discharges, their cause should be ascertained by a carefully made examination. If, on the contrary, the beginnings of uterine disease are overlooked, they take root in an imperfectly involuted womb, and the patient is likely to become a confirmed invalid with a subsequent history of deranged menstruation, miscarriages, premature deliveries, and bad recoveries. I often trace long years of perfectly preventable misery to the injudicious management of a bad getting up.

Further on, when debility is followed by a long continued state of great debility, unattended by pelvic pain, or by any characteristic vaginal discharge, a practitioner may well be excused for not having examined his patient, although the inability of explaining this chronic exhaustion, by diarrhœa, or expectoration, or by profuse sweats, should lead him to suspect, that as this exhaustion, originated in delivery, it might be kept up by something amiss in the womb.

These views are illustrated by Dr. Tilt, with several cases each pointing out its clinical application.—[*London Lancet*, Oct., 1876.

"DEFECTIVE UTERINE INVOLUTION"—Is followed up by an excellent paper by the same author on the "treatment," the labors of the "workshop of uterine pathology" are to be anticipated in part by proper treatment of the pregnant woman. Many women want more medical treatment during pregnancy than they usually get; they want tonics, above all, iron. So too he thinks, labor should be shortened, so far as safety will permit, by ergot and instrumental aid. "Those who object to medical treatment during pregnancy, and to the expediting of labor, on the plea of interfering with natural functions, should bear in mind that we have to do with women considerably modified by hereditary tendencies, and by the bad hygienic habits that always wait on a high state of civilization, Some of the women we attend have never done a hard day's work till labor pains set in." Dr. Tilt calls attention to the traumatic condition of the uterus and all its appendages at the termination of labor, as an important factor in subsequent uterine trouble. The womb, vagina, and all adjacent tissues are bruised, but for most of these traumatic injuries, nature provides the cure, but he supposes rents and fissures of the cervical canal may prove the foundation of serious trouble. "To check such lesions in their earliest stage the best way is, after each case of labor, to suppose the existence of traumatism in the cervix and vagina, and to order vaginal injections to be made, so soon as the lochia shall cease to be red. I know of no better injection than a solution of acetate of lead, one drachm to the pint of tepid water. If our author finds a considerable amount of cervical ulceration two or three months after parturition, he suspects incomplete involution of the body of the uterus, even if cervical involution be complete. The usual local treatment of the ulceration, will usually accellerate corporal involution; but he suggests "a ten grain mercurial suppository to be put up the vagina, on going to bed, for the first fortnight and afterwards for alternate nights, for two or three weeks, telling the patient to inject plain water in the morning, and a solution of alum and zinc at night. The exhibition of the mercury should be stopped, if the gums show signs of impending solution."

"When the womb is found large enough to admit a bougie to the depth of about four inches, and when this enlargement can be traced to a delivery that occurred a year or more previously, it is fair to attribute this enlargement to defective involution, but its treatment merges into that of one or more complications that will certainly have arisen in that time — displacements, internal metritis, hypertrophy, or chronic inflammation of both body and neck of the womb."

"Defective involution is probably the reason why one abortion is so often followed by others, the uterine walls refusing to properly expand for the safe guardianship of the fetus, whereas, if the body of the womb be healthy, pregnancy will often proceed satisfactorily, in spite of serious cervical inflammatory lesions. It is of course, still possible for pregnancy to be brought to a satisfactory issue under any circumstances; for a case now under observation, the cervix was extensively torn in a first labor eighteen years ago, and abortion was reported seven times consecutively. An enlarged body as well as a considerable amount of cervical enlargement and inflammation was recognized some years ago by Dr. George Bird, but the treatment he recommended was not carried out. From the symptoms complained of previous to the eighth conception, it is clear that the uterine disease had not abated, and yet this lady went her full time and was safely delivered of a fine boy."

"Involution is so often defective after abortion because women get about too soon, and too soon resume matrimonial intercourse, and the want of some definite understanding respecting the rules to be adopted after abortion renders it a fertile source of disease. Much of this would be prevented if we could persuade the public that a month's treatment is not too much for an ordinary miscarriage at the third or fourth month, and that a bad miscarriage is worse than a confinement."—[*London Lancet*, Nov., 1876.

THE CAUSE AND TREATMENT OF RICKETS.— Dr. Norman Moore in a thesis for an act for the degree of M. D., in the University of Cambridge, has made some interesting observations, which are evidently the result of much study and consideration of this subject. The author, accepts Sir Wm. Jenner's definition: "Rickets is a general disease, manifested by certain lesions of the bones," and then proceeds to give a short account of the disease drawn exclusively from his own observations. The earliest stage at which he has seen rickets in ten weeks, the latest at which it seemed to begin twenty-two months. It most often attacks children while cutting their teeth, or just before they cut them, and usually causes pain at its commencement. It is a disease of indefinite length. Rickets rarely causes wasting. Out of two-hundred cases tabulated by Dr. Moore, there was wasting in eight only. From the observation of these two-hundred cases, he is led to the opinion that the main cause of rickets acts through the digestive system, and is improper feeding. The child is suckled too long, or fed too soon. Bad air, want of cleanliness, ill-nourished parents, may no doubt be presumed in some of the cases, but by no means in all, nor even in the majority; for the out patient's of the Children's Hospital, in Great Ormond St, are often better to do than those of other hospitals. The cause of rickets is not to be found in the wealth, the poverty, the nationality, the age or diathesis of the parents; nor can it be considered a result of previous acute or inherited disease of the children. Dr. Norman Moore adds an argument from animals. He says: "that Dr. Harris, of Caius College, had a few years ago some Beagle pups which were fed soon after birth on dog biscuits. Their legs were noticed to become bent and their joints enlarged. There were well marked beads to be felt on their ribs. The administration of cod-liver oil cured them. A somewhat similar result followed in the case of a young hen-harrier, taken by our author from its nest in the heather, in the summer of 1874, brought to London and fed on beef, with now and then a bird. It ceased to thrive, did not emaciate, but became feeble. Its leg bones were soft, and after death could be slightly bent. The first point then, of course, in the treatment of rickets is the regulation of diet. If past eight months old, the child must be weaned. If younger and fed on solids, it must be given to a nurse, or fed on cow's milk mixed with a little water, or preserved milk. The next point is the administration of cod-liver oil. In treating the complications of rickets, the treatment should be general and not symptomatic.—[*London Lancet*, Nov. 1876.

THE INFLUENCE OF PHTHISIS UPON CHILD-BEARING.—Amongst the numerous theses sent in this year for the Doctorate of Medicine of the Faculty of Paris is one by M. F. Ortega upon the above subject. The essay is fairly summarized in the *Review des Sciences Medicales*, and the following are amongst the chief conclusions arrived at by the author as a result of investigations in ninety-five cases. Phthisis has in the first place a marked effect upon conception; thus the author only met with thirteen out of his ninety-five females who, after the commencement of pulmonary symptoms, bore more than one child, and a third pregnancy was very rare in such circumstances, although many of the women were multiparæ. In all these cases the phthisis was in the first and second stage, in one only it was advanced. In this case there was an abortion at the fourth month, and death shortly after. As to pregnancy, more than one-third of the cases aborted, or were premature deliveries, and reckoning only those who had a tubercular history, in but one-half did the pregnancy last till full term. Phthisical mother's are moreover unable to suckle their offspring, for setting aside ten cases in which phthisis developed during and probably under the influence of lactation, only eleven out of sixty-four infants, were suckled by their mothers, and these mother's, healthy at first, soon showed signs of insufficient nutrition, and died with enteritic symptoms. M. Ortega's cases show also that pregnancy hastens the evolution of phthisis to a marked extent, delivery being rapidly followed by the death of the mother, although the first days of the puerperal state are generally marked by a considerable abatement in the pulmonary symptoms, both pregnancy and lactation he regards as exciting causes of phthisis in predisposed subjects.—[*London Lancet*, Nov., 1876.

Proceedings of Societies.

PROCEEDINGS OF THE MEDICAL ASSOCIATION OF DELAWARE COUNTY.

Reported by F. W. MORRISON, M. D., Secretary.

Society met, Dr. C. Welch, President.

Dr. Potter introduced the subject of *Placenta Previa* prefacing his remarks by a reference to its infrequency; said, that it is estimated by different writers to occur in from a little less than once in fifteen-hundred cases of child-birth, to a little oftener than once in five-hundred cases. It has probably happened in about as large a proportion of cases ever since children began to be born, and yet, strange as it seems to us, it has been generally recognized but little more than a century. Ramsbotham, says: "that it was first described by Portal in 1665; that it was not generally received by the profession until Smellie's work was published in 1752; and that Rigby in 1775 brought it into general consideration."

Thus our entire knowledge of this condition is of recent date, and it is likely that its causes and management are not yet as well understood as they should be. It is certain that conflicting opinions are entertained respecting the cause and management of its attendant hemorrhage. I propose to consider the following questions: (1) What are the immediate cause and source of the hemorrhage? (2) When placenta previa is suspected, ought its existence to be verified or disproved by vaginal examination? (3) Ought we as a rule to bring on premature labor? (4) If such premature labor be desirable, at what period of pregnancy should delivery be effected? (5), What are the best means to expedite delivery and allay the flooding, either before or at full term?

First, cause and source of the hemorrhage. The placenta being placed partly or completely over the neck and mouth of the uterus, the unequal growth and expansion of the lower part of the uterus and the placenta, tear asunder some of the connecting vessels and cause the bleeding. Nearly all the writers seem to consider that, during the last month or two of pregnancy the more rapid development of the lower uterus causes the separation; but (Meadows

1871) thinks the after-birth outgrows that part of the womb. Dr. Dewees says: "that the enlarging of the lower portion of the neck and mouth of the womb is two fold, the development of growth, and the expansion of stretching; that the amount of bleeding will depend upon the relative amount of these modes; that if the expansion be chiefly the development of growth, there may be no bleeding until labor at term commences. Dr. Simpson's theory that the blood comes chiefly from the placenta does not seem to be sustained by the observation of others; and the general opinion seems to be that there is not free anastamosis, allowing as much bleeding from a small separation as from one more extensive; and that when bleeding from one exposed part ceases it is not renewed from that part, but only from a fresh rupture.

Secondly, ought we by vaginal examination to verify or disprove the existence of suspected placenta previa? Yes, says Meigs: "When placenta previa is suspected it should be verified or disproved by examination." No says Dewees: "An examination is never necessary, so long as the flooding is moderate. We cannot determine the situation of the placenta before the full period without much pain and force." Ramsbotham says: "Where the bleeding is slight and has subsided, it will not generally be necessary to make a vaginal examination unless arrived at term, because by such examination we can gain no information, may bring on a renewal of the bleeding, and can do nothing while the os remains perfectly closed." Where experts differ novices cannot be expected to decide.

Thirdly, ought we as a rule, to bring on premature labor? The well-known fact that miscarriage or premature delivery effected by professional abortionists, in ordinary cases, is attended with much greater danger to both mother and child than ordinary childbirth—that it requires greater violence in opening the external and internal passage, before the course of nature has fitted them to yield—and that flooding is greater as a rule, in premature labor than in labor at term, should caution us against rashly inducing a condition we always dread to meet. Yet, upon this point authorities differ. The quotations already given from Dewees and Ramsbotham against examining to ascertain, are equally strong against interfering to cut short cases of placenta previa. Dewees says: "We should ever have in view to enable the woman to go her full term to the end of gestation," Meadows (London 1871) says: "Our chief care at first is to arrest the discharge and prevent expulsion." "Any large loss of blood demands the termination of pregnancy." From which I infer that he would not terminate it as a rule, but from necessity. Byford, (Chicago 1870) says: "Sufficient separation of the placenta to endanger the life of the patient will not be likely to take place before the beginning of labor; and all we will generally be obliged to do before labor begins, will be the general treatment indicated before." Yet Byford quotes Dr. Greenhalgh, of London as recommending premature labor as a rule. Greenhalgh says: "After seven months and a half, when the child is viable it is expedient for the safety of both mother and child to expedite labor by every means in our power—by the plug, bandage and ergot, and sometimes by rupturing the membranes. Where labor is induced fifty-two out of the fifty-three of the mothers are saved, and three out of four of the children."

Thus as nearly as I can ascertain most of the late writers as well as all the earlier ones, recommend conducting the pregnancy to its full term where practicable. If Dr. Greenhalgh's report of the success of the opposite management should be confirmed by its common results, the theory must be reversed, but it is often the case that the decided success of a particular method reported by an enthusiast fails when tried by others; and until further reports shall more fully establish the merits of this plan I would incline to resort to premature delivery as a necessity, not as a rule; believing that where the hemorrhage is slight it is better not to interfere; but where it is excessive, safety requires that one should endeavor to prevent its repetitions by removing the cause.

Fourthly, as to the time when delivery should be attempted I do not know as there is much difference af opinion. We do not often know or suspect the existence of placenta previa before the seventh month. And when flooding threatens life nothing is to be gained by delay.

Fifthly, when we have determined to try to hasten delivery, either before or at full term what are the means? Setting aside extracting and dismembering instruments, of which, I do not propose to speak, these means include *ergot*, *the bandage*, *the plug*, *the dilator*, *rupturing the membranes and turning*.

Ergot has commonly been considered an auxiliary to be used with care, to promote expulsive efforts, and to help in producing permanent contraction after delivery, thus controlling hemorrhage. Dewees, speaking of its use in general says: "It should never be given before the membranes are ruptured, the os dilated, and the external parts disposed to yield." This, I think, is the common teaching, but Byford says: "Ergot is right in these cases whatever the condition of things may be. It is a part of the action of ergot to open the mouth of the uterus as well as to lessen its cavity." Judging from what I have seen of the action of ergot in other cases I would fear to make it my chief reliance, or to give it in a case of undilated rigid os uteri.

The *bandage*, described I think by Byford, is a broad elastic band, under which is placed a circular compress or hollow ring to help a little by pressure the uterine contraction, this seems to me to be appropriate; safe, if not very efficient; but not likely to be at hand when wanted. The plug is with many, probably with most, the main reliance, yet it is condemned by some. In my early practice I was greatly influenced by Dr. Meigs, a fascinating and popular writer. Just before describing placenta previa he cautions us in the strongest language against using the plug, in advanced stages of pregnancy. He says: "It may enable us to conceal from the patient and ourselves the fact that the vital fluid is escaping. It is in general better, to let all the blood that escapes from the vessels, escape also from the vagina, I would gladly urge upon the student the necessity of the greatest caution in the employment of so dangerous an agent as the tampon, except in the early stage of gestation." Deeply impressed by these teachings I was summoned to a case of labor which proved to be placenta previa. Watching it for two or three days, with Meig's in my pocket, I had time to read and re-read his article on this subject in which he makes no allusion to the tampon as one of the means at our command. I erred in fearing and shunning the plug; led into error by an author whom I supposed to be competent and reliable. Among the authors who strongly recommend the plug as one of our most efficient means may be mentioned Dewees, Ramsbotham, Churchill, Meadows, Barnes and Byford.

No one, as I am aware, objects to a proper use of the *dilator*, the most common dilator is the hand, but it is not the only one, the plug is a dilator also; and as such its form is not important. A piece of sponge, some handkerchiefs or strips of muslin may answer to prevent the escape of blood. The dilator of Dr. Barnes is a perfect plug, in the right place, as well as an efficient opener of the os. The objections to it are that it is too expensive to be kept by country doctors who will more likely than not never have occasion to use it. The colpeurinter—(an elastic bag filled with water or air—mentioned by Byford) seems to me to combine the advantages of an excellent vaginal plug with ease of introduction and removal, and to be superior to any other for common use. (Dr. Potter here exhibited the dilators just referred to and proceeded to explain more definitely their method of introduction and advantages).

Rupturing the membranes advocated by some, Dewees says: "Should never be done, especially before the os uteri is well dilated, or easily dilatable. Turning, which is almost universally advised, is challenged by Byford, who says: "I believe that turning has killed more than it has cured." There are some other points, such as separating the placenta wholly or from the lower uterine region, and piercing the placenta with the hand, of which I proposed to say something, but my remarks are already too long. I will say in conclusion, that I would procure premature delivery from *necessity*, not *choice;* and that to effect delivery I would rely greatly upon the tampon, dilitation, and turning; using, ergot, and the bandage if at hand as accessories.

Dr. Blymyer, would have no hesitancy in using the tampon, ergot, or rupturing the membranes after the seventh month, when using a plug prefers a fine sponge. Does not think turning dangerous to the child, has always been successful himself when it became necessary for him to resort to this method of delivery, and never under his observation did a child die by turning. We cannot diagnose a case of placenta previa before the sixth or seventh month. Have had some experience in unavoidable hemorrhage in late pregnancies, once I thought I had a case in early pregnancy, but it proved to be a polypus. Have never practiced Prof. Simpsons "extraction of the placenta," but had a case where it was expelled before the child was born. We should not hesitate to make a vaginal examination at once. The plug causes the uterus to dilitate and brings on labor, which is certainly desirable in a case like this. The sooner the child is born the better, as there is always danger from the first. Have witnessed cases where the bleeding was slight.

Dr. McCann, when the os is undilated and the hemorrhage considerable, we must resort to the tampon, and when using one prefers a silk handkerchief, in my experience it has been a most efficient plug, when other means have failed to control the hemorrhage. Turning is necessary when the cervix is sufficiently dilatable and the discharge of blood profuse, in these cases we are apt to delay the operation of turning until it is too late. There are circumstances where delay is admissible, when the hemorrhage is slight and no evidence of sinking. I can't see how a case of placenta previa can occur and terminate with only a slight hemorrhage, as referred to by Dr. Blymyer, from the very nature of things profuse bleeding will take place from the open uterine vessels.

Dr. White, the plug is good when other means fail to arrest the hemorrhage, it excites uterine contractions, besides restraining the outward flow of blood, and I think hastens the period of relief. I know authorities differ respecting the use of the plug, but cases differ; in my opinion it has fulfilled all I expected of it. Rupturing the membranes when the woman is very near her full time is generally followed by contractions which stops the blood flow. In terminating a case of placenta previa, when not at full time, I would concur with Dr. Potter i. e., procure premature delivery from necessity and not from choice. When admissible turning is the proper course to pursue. I have practiced it and saved the child. Prof. Simpson's method insures the death of the fœtus from want of oxygenated blood, and does not get you out of danger, or materially hasten the termination of the case. I had two cases before the seventh month which I suspected to be placenta previa, one of these cases was as early as the fourth month.

Dr. Cummins advises turning, which is taught and practiced by the best authorities.

Dr. Fowler. In using the tampon we form a clot within the cervix and this coagula stops the hemorrhage.

Dr. Welch. In these cases the woman is always in danger and should not be left so, believes in terminating the labor as soon as practicable.

Next in order was a paper read by Dr. S. W .Fowler on *Arsenical Poisoning* with a report of cases. The doctor giving very minutely the symptoms, treatment and tests, told the method of removing the stomach preparatory to analysis. Discussion on the above by Drs. Hyatt, Hills, Constant and Blymyer.

Dr. Hyatt, then related a case of fracture of the skull. The accident occurred to a farmer a few miles north of town, who was attempting to remove a corn crib, the building falling on his head fastening it firmly on a log beneath. The skull was badly fractured with depression and injury at the base of the brain. There was a copious hemorrhage from the ears. He together with Dr. Williams elevated the depressed bone. The relief from compression being very slight and momentary—patient lived about thirty-six hours—age fifty-five years.

CINCINNATI MEDICAL SOCIETY.

Reported by DR. P. ZENNER.

Society met October 31st, 1876, Dr. Comegys presiding.

In the absence of Dr. Stanton, Dr. Zenner was appointed Secretary for the evening.

The following officers were elected for the ensuing year: Dr. J. A. Murphy, President; Drs. J. P. Walker and Wm. B. Davis. Vice Presidents; Dr. Philip Zenner, Recording Secretary; Dr .J. C. Mc Kenzie, Corresponding Secretary; Dr. J. C. Culbertson, Treasurer; Dr. A. C. Kemper, Censor; Drs. Jno. Davis, G. Holdt, and J. B. Hough, Trustees.

Dr. Fishburn presented a specimen of cancer of the stomach. The peculiarity of the case was that there were no stomach symptoms at all, except occasionally slight difficulty of digestion. He complained of symptoms of nephritic colic. passed gravel occasionally, and there was some suspicion of calculus. Toward the last there was pain in the region of the heart and in the left shoulder, and he became very anæmic, though not of a waxy cachectic appearance.

The disease involved the greater part of the stomach, but not the pyloric orifice. Kidneys and bladder healthy.

Dr. Dandridge said that two years ago he presented a case in which there were no gastric symptoms. The growth involved the liver and stomach. It began in the liver in which a large abscess formed which afterwards penetrated the stomach at a point where the two organs had become adherent.

The mass could be felt through the abdominal walls, and gave a distinct pulsation which suggested abdominal aneurism.

Dr. McKenzie read the following report of a case, coming under his charge at the college dispensary. A man, age 30, Barkeeper, Family history good. Previous health good. Never has had syphilis. Has always been temperate. No venereal excesses. A year ago he was seized with a convulsion which was attended with unconsciousness biting of tongue, tonic and clonic contractions of the muscles, in short all of the phenomena of an epileptic paroxysm. There was a recurrence of these for five months; the last of them occured about 7 months ago. At that time after one of these paroxysms he was confined to bed for five days and had five or six convulsions daily. Sometimes losing consciousness, sometimes retaining it. During this time he was troubled a great deal with pain in the head, not very acute, and not limited to any particular locality. Since that time the epileptiform attacks have ceased, but instead of this he has suffered with spasms, in paroxysms, in the left leg, which have been sometimes limited to that member, but sometimes have extended to the arm of the same side, and on a few occasions have involved the opposite side also. They have never been preceded by premonitory symptoms nor attended by loss of consciousness, but are usually followed by more or less vertigo and mental lassitude.

They have recurred sometimes every day, sometimes two or three times daily, and sometimes at intervals of a few days, never however has the interval between the paroxysms exceeded a week.

He says, that for two years before the beginning of his disease his mind had been worried by misfortune in business, and a short time before the first attack he had had family misfortunes, having lost his father and mother, the former dying of some acute pulmonary affection, the latter of paralysis. He is now suffering more or less mental distress from his inability to support his family, having done nothing for a year.

He says that his general health has been excellent, but he thinks he has been losing flesh. His condition when he presented himself at the dispensary of the Miami Medical College Sept. 25th, 1876 was as follows:

A man of fine muscular development and moderately stout. Nothing in his external appearance would indicate that he is the subject of disease. Skin natural as to temperature and moisture. Pupils of normal size and quite responsive to light. Nothing abnormal in the sensibility of the surface. No paralysis or irregularity of the movements of any part. Intelligence as far as can be judged by his responses, perfectly preserved; special senses unaffected; heart sounds quite healthy; pulse 80, moderate forcefulness; respiratory sounds normal; tongue moist, clean and protruded without deflection; appetite excellent; digestion performed properly; bowels regular; urine, according to his statements, about the same in quantity and appearance as during health; it has not been chemically examined. Condition of generative functions normal. He says the spasmodic paroxysms are not preceeded by any premonitions, but are followed by some numbness of the parts, which however passes away in a few moments. The paroxysms may be induced by previous excitement, but they occur frequently without any such cause.

I gave the patient twenty grains bromide of potassium *ter in die*, and advised the careful avoidance of any mental excitement. He presented himself at the dispensary again two weeks ago, and stated that he was better in as much as he had not been troubled with the vertiginous sensations after the paroxysms as formerly. The paroxysms were nevertheless quite as frequent as before. I examined his eyes ophthalmoscopically, and found them in all respects quite healthy.

In the last two weeks have seen the patient twice, last time yesterday. The muscular spasms have continued, notwithstanding, he has taken the bromide of potassium regularly. I changed his treatment to the sulphate of atropia one-hundred and twenty-eighth of a grain thrice daily, to be increased afterwards.

Dr. McKenzie said that in this case there was evidently a discharging lesion, where situated it is difficult to say. Possibly some irritation in parietal lobe near the longitudinal fissure as experiments of Ferrier would indicate.

Dr. Hough said the details of the above case, recalled a case to his mind in which he himself was the subject. Last winter while in the midst of a lecture he observed himself suddenly becoming forgetful, the outline of his lecture was fading from his memory, and the difficulty increasing he soon completely forgot the subject of the lecture and even the names of the students, so that he was compelled to stop lecturing. On his way homeward he observed that he had forgotten the initials of his own name, the name of the street on which he was walking, and the number of his house. He observed that he had forgotten words almost entirely, what he had been lecturing on, etc., but remembered what he had done. There was very slight headache, no other symptom except the forgetfulness. This gradually passed away and next morning he was all right. During his lecture he was preparing nitr gen per oxide, and it may be that some of the gas escaped into the room. He mentions this fact as he knows of nothing else that could have caused the trouble. He saw Dr. Murphy an hour after the difficulty first appeared.

Dr. Murphy said Dr. Hough came to his office, said the Dr. had a vacant appearance in his face looked like one who had suffered from concussion. After he had been in the office fifteen minutes he could say Elm street, a little later Dr. Murphy. The Dr. thought the inhalation of gas had something to do with the loss of memory.

The Dr. spoke of the great value of proper regulation of diet in the treatment of epilepsy. He was called to see a boy who had seven convulsions on the day of his first visit. He ordered bromide of potash and strychnia, restricted his diet to milk, bread, rice, soup, etc. After seven weeks had no further convulsions. He craves other food but it is strictly forbidden.

PROCEEDINGS OF CLARK COUNTY MEDICAL SOCIETY NOV. 9th, 1876.

Society met in Agricultural Rooms at 2 o'clock P. M., Dr. Seys in the chair. The Secretary Dr. Kay, being absent the reading of the minutes of the previous meeting was dispensed with. Dr. Ewing was appointed Secretary *pro tem.*

Dr. Hazzard related a case of severe burn of lower extremities complicated with inflammation of the bowels that he had seen in consultation. The treatment in the case had been the painting of the burned surface with white lead, subsequently applying yeast poultice. Result of the case, death! He then entered into quite a lengthy discussion of the different modes of treating burns, including the apple-butter treatment, immersing in sweet milk, &c, &c. Concluded by saying, the treatment of burns had generally proved unsatisfactory to him.

Dr. Bryant thought that we could now treat burns quite satisfactorily. He uses ℞ carbolic acid cryst. in glycerine; first used it two years ago with good results. In one half hour after application there is no pain, after two or three applications used carron oil. Could give no scientific explanation of the action of carbolic acid, only that it acted like a charm.

Dr. Seys said that in his sojourn at the Oil wells, he saw a great many severe burns. His treatment had been ℞ carbolic acid in linseed oil, then with cotton batting; thought the action of carbolic acid was that of a disinfectant.

Dr. T. R. Potter having been appointed at a previous meeting to read a paper on hemiplegia. He divided his subject into the congestive and hemorrhagic stages, and entered at length into a narrative of the history, course and symptoms of such a division, taking the grounds that there was no such thing as rupture of an artery as in the hemorrhagic variety of hemiplegia, but that the extravisated blood found within the brain substance was the result of transudation. He also dwelt at some length on the causes of hemiplegia taking the ground of natural causes, instead of accidental or acquired causes. He produced evidence to show that the liability of an attack of hemiplegia increases as we approach sixty years, from that time to eighty it diminishes. That the arterial system is the active power, the resistence being accomplished by the veins. That for the healthy support of the body, the action must bear some proportion to the resistence. Up to sixty years of age the action and resistence were equal. After the *acme* of life the equilibrium of the circulation being destroyed hemiplegia often supervenes from hypertrophy of the left ventrical. He failed to see the cause of our ruin in the excessive use of tobacco. But on the contrary from the day of its discovery in Yucatan to the present, not a single well marked and well authenticated case of hemiplegia had resulted from its use. He deduced a rational treatment from his theory.

Dr. Bryant thought that the highest compliment that could possibly be passed on the essay was the silence of the members, if it had been 2nd or 3rd rate the subject matter would have been energetically and exhaustively discussed, was of the opinion that dyspepsia was one of the prime causes of paralysis, that tobacco had nothing to do with it.

Dr. Seys thought that we should consider and speak of paralysis as a sympton, and not as a disease.

In all cases we should endeavor to determine the character of the lesion, on which the symptoms depend, for on the accuracy of our diagnosis will depend not only the treatment but also our prognosis, and enable us to speak with some certainty as to the future of our patient.

The causes may be divided into centric and excentric lesions within the cranium and spinal canal, and those producing their effects by reflex action.

Thrombus—embolism—softening-tumors, specific and otherwise, gastric and hysterical disturbances, hemorrhagic and serous effusions and many other causes which give a somewhat different aspect and history to the case.

Regarding treatment—it should be devoted not only to the cause when determined, but also to the effects.

As to the case reported he regarded the use of galvanism as uncalled for, and not promising relief. Its use can only be of benefit he thought where the paralysis depended on loss of function in either muscles or nerves, and not where tissues had been distroyed by disease process.

We should not be in too great hurry to use it—waiting if there be irritation or inflammation until it has subsided.

Our knowledge of the results of lesions of brain tissue is but limited and if the later enunciations of Brown-Sequard are to be received, we must forget much that has been taught us and prepare ourselves for new and startling ideas.

Dr. Buckingham thinks that apoplexy most frequently comes from derangement of the stomach, and thinks that the excessive use of tobacco may bring on derangement of the heart.

Dr. Rodgers related an interesting and rather anomalous case of chorea. Dr. Buckingham gave an interesting and graphic history of a case of paraplegia that had terminated in his hands by death.

INDIANA, ILLINOIS AND KENTUCKY TRI-STATE MEDICAL SOCIETY.

The second annual meeting of this society, was held in the city of Vincennes, commencing at 7.30 P. M. November 21, 1876.

The meeting was largely attended, and a great amount of valuable work was done in the way of important papers and the interchange of thought and experience on practical subjects.

Papers were read by Dr. W. H. Byford, Chicago; Dr. J. A. Ireland, Louisville; Dr. J. W. Thompson, Paducah; Dr W. Dickinson, St Louis; Dr. F. F Rumbold, St Louis; Dr. Bernard Tauber, Cincinnati; Dr. J. W. Compton, Evansville and others. This society promises to impart greater good to the physicians of the great Mississippi Valley, than can be reasonably expected from any other medical organization. It has not, nor does it propose to have, any legislative work to do, or ethical disputes to settle, to interfere with its good work of disseminating useful, practical and scientific knowledge.

It receives no one to membership, except he may be in good and regular standing in some local, county, district or state medical society, auxiliary to the American Medical Association. Officers for the ensuing year; Dr. W. H. Byford, Illinois, President; Dr. G. G. Bartes, Ind., first Vice President; Dr. J. L. Dismienke, Ky., second Vice President; Dr. H. H. Demming, Ills., third Vice President; Dr. G. W. Burton, Recording Secretary; Dr. F. W. Beard, Corresponding Secretary: Dr. A. Patton, Treasurer.

Sections; Surgery and Anatomy, Dr. J. W. Thompson, Paducah Ky., Chairman.

Practical Medicine; Dr. Ezra Read, Terre Haute, Ind., Chairman.

Obstetrics and Gynecology: Dr. J. A. Ireland, Louisville, Ky., Chairman.

Next annual meeting will be held in the city of Evansville, the third Tuesday, in October 1877.

Editorial.

To our friends one and all we send greetings and wish them a happy and prosperous New Year.

The Centennial year 1876 will long be remembered as one of hardship and in many cases of real financial disaster. Bills have been hard to collect. Many people seeming to think that while the grocer, butcher and baker must be paid, the doctor—good fellow though he is, and very handy to have in the house in case of sickness, is permitted to wait until after harvest, the hogs butchered, and taxes are paid. This is all very well on one side but it is sort-o'-hard on the other, and what frequently makes matters worse is the fact that such conditions are very often unnecessary.

Few bills should take precedence of the physicians in settlement, his personal services are at the call of his patrons at any hour of the day or night for seven days in the week. Our subscribers understand this state of affairs, and we mention it only to urge upon most of them the necessity for a prompt presentation of their bills as soon as their services are rendered, with an urgent request that the account be liquidated.

OUR subscribers will notice the improved appearance of the Journal in being printed on fine tinted paper, that the mechanical work is done in the best manner, and that it is issued from THE LANCET PRESS.

THE policy of the LANCET AND OBSERVER will continue to be that of an independent medical journal, faithfully portraying the progress and views of western practitioners of medicine. Valuable papers and proceeding of societies will find space in each number.

While admiring the elegant appearance and valuable contents of their journal, subscribers will remember that each number costs a large amount of money and the labor of many hands. And as they receive one of the best and cheapest journals published, we ask for their assistance and evidence of good will by sending us the names of one or more new subscribers.

The Detroit Review of Medicine and Pharmacy, and the Peninsular Journal of Medicine have been consolidated, and will be issued as the Detroit Medical Journal. The Editors are Prof. Leartus Connor and John J. Mulheron, M. D. Such unions mean strength.

By an oversight the Report of a Case of Poisoning by Tincture of Gelsemium. Treated by Hypodermic Injection of Morphia. By Geo. S. Courtright, M. D,, on page 961 of the LANCET AND OBSERVER 1876, was omitted from the Index of that volume.

Review.

Cyclopædia of the Practice of Medicine. Edited by DR. H. VON ZIEMSSEN. Vol. VI. Diseases of the Circulatory System, together with Chapters on Whooping Cough, Diseases of the Lips and Cavity of the Mouth and Diseases of the Soft Palate. Albert H. Buck, M. D., New York, Editor of the American Edition, New York: William Wood & Co.

This is the largest and one of the most valuable of the series yet published, containing 1014 pages and written by Prof. Rosenstein of Leyden, on diseases of the heart; Prof. Schroetter of Vienna, on changes in the position of the heart and diseases of the heart substance; Prof. Lebert of Vevay, on congenital diseases of the heart; Prof. Quincke of Berne, on diseases of the vascular system, Dr. Bauer of Munich, on diseases of the pericardium, Dr. Steffin of Stettin, on whooping cough; Dr. Vogel of Dorbat, on diseases of the lips and cavity of the mouth, and Prof. Wagner of Leipsic on diseases of the soft palate.

As the work of publication progresses, each number seems to excel its predecessors in the value of its contents.

Principles of Human Physiology. By WILLIAM B. CARPENTER, M. D., F. R. S., F. G. S., F. L. S., Register of the University of London. Edited by Henry Power, M. D., F. R. C. S. A New American/from the Eighth Revised English Edition. With notes and additions. By Francis G. Smith, M. D., Professor of Institutes of Medicine in the University of Pennsylvania. Philadelphia: Henry C. Lea. For sale by Robert Clarke & Co. Price $6 50.

Rarely has a medical work been received with such favor by the whole medical profession, as that accorded to the successive editions of Carpenter's Physiology, each edition in its turn being largely rewritten in order to faithfully present the results of late physiological investigations.

From a careful examination we find this volume fully and accurately represents the existing state of physiological knowledge. The work is so well known as to require no words of commendation at our hands.

On the Use and Value of Arsenic in Diseases of the Skin. By L. DUNCAN BULKLEY, A. M., M. D. New York: 1876. D. Appleton & Co.

This is a reprint of an exceedingly interesting paper, originally read before the "American Medical Association," and afterwards published in the "New York Medical Journal." Dr. Bulkley, in this paper, claims that arsenic is often prescribed in different skin diseases in which its therapeutic application is not only harmful but absolutely useless. His observation that this remedy is indiscriminately given in all forms of cutaneous eruption, no matter what their origin may be, is no doubt just. Accuracy in diagnosis is an absolute necessity, before the remedy can be rationally used. The forms of skin disease in which arsenic is especially useful, are those arising from the rheumatic diathesis, "arthritic eruptions;" those arising from various neuroses, as for instance neuralgia and chorea; those having periodic tendencies, as "intermittent urticaria." It is also valuable in "psoriasis, eczema, pemphigus, acne and lichen." Less valuable in lupus, icthyosis, sycosis and epithiliomatous and cancerous diseases." The remedy is absolutely contra-indicated in "syphilodermata. animal and vegetable parasitic diseases (except in rare cases), in elephantiasis, purpura, trueprurigo, herpes zoster, sclleroderma, mollusca contagiosum, fibroma, keloid, nævus, etc."

The paper is written in Dr. Bulkleys best style and is extremely readable, making altogether a valuable contribution to the special study of dermatology. T. C. M.

Spinal Irritation.—Its Pathology and Treatment. By WM. A. HAMMOND, M. D., This paper is No. 10, of Vol 2, of "A series of American Clinical Lectures."

We confess to a certain feeling of disappointment after the perusal of this lecture, so called. The author exhibits a degree of *irritation* other than spinal in his treatment of the subject. This sad effect has been brought about by the denial on the part of certain writers that "*spinal irritation*" is produced by anæmia of the posterior columns of the cord. That any author should dare to differ from the theories evolved from the gigantic intellect, of such a neurological genius as Wm. A. Hammond, is a pleasing matter of surprise. The particular offender in this case seems to have been Dr. Bauduy, of St Louis. Our author states at the commencement of his article, that, "if the words spinal irritation, and especially posterior spinal anæmia, are uttered in the hearing of some individuals, an effect is produced very much like that which results from flaunting a piece of red flannel in the face of a mad bull, or singing an obnoxious political song into the ears of a member of the opposite faction."

This unique and picturesque comparison is striking, if not altogether complimentary, and the surmise is at once made that Wm. A. Hammond intends to play the part of literary matador, and demolish the offending bull aforesaid. After telling the reader that "denial is not proof, and that invective is not argument," our author proceeds to demonstrate the truth of this remark by the following singular statement, "an erroneous doctrine or theory is better than that silence of mental hebetude which neither excites discussion nor prompts to further investigation." The drones and the dullards sit quietly with folded hands "waiting for something to turn up." till some one bolder, and more searching than they pitch a hand-grenade in the shape of a new theory, into their midst, when sad indeed is their condition if they do not at least unite in an attack on the assailant. From the resulting contest only ultimate good can come. The theory is sifted, its pretensions are confirmed or exposed, new facts are adduced, and in the end there is a positive advance of science. As to the personal abuse that may pass between the combatants, that is a small matter. A man is probably neither better nor worse for holding any view he chooses relative to the pathology of "spinal irritation." An analysis of this statement at once shows the eminent degrees of consistency that may be attained by a first-class neurologist. The fact that our author so liberally bestowed "invectives" of "drones" and "dullards" is "not argument" will be most fully appreciated by the most obtuse intellect. Of course, we at once recognize in the "bolder" gentleman who shies his hand-grenade into the ring of "drones and dullards" the valorous and untutored child of neurological genius, Hammond. "From the resulting contest only ultimate good can come," says our author, and there-upon proceeds to use his argumentive sword upon the unfortunate Bauduy; then, "sifting" his own theory and "its pretensions," he continues to adduce "new facts," no doubt based on his admitted proposition that, "an erroneous doctrine is better than the silence of mental hebetude." At the conclusion of his struggle with the recalcitrant Bauduy, the spectator becomes painfully convinced that the literary matador has emerged from the conflict in a worse damaged condition than the bull; such things occasionally occur; however, one of the most touching and pathetic sights in life is the elevation of genius on its own petard. Alas! for the man with the neurological hand-grenade.

Dr. Hammond's observation that "a man is probably neither better nor worse for holding any view he chooses relative to the pathology of spinal irritation," is no doubt a just one. We look in vain through the article in question for the results of any pathological investigation in this disease "consisting eventually in an anæmic condition of the posterior columns of the spinal cord." Our author freely admits that.

"People, fortunately for themselves, however unfortunately for medical positivism, rarely if ever die of spinal irritation, and we do not therefore often have the opportunity of making *post-mortem* examinations of their spinal cords," and that, "even in the few cases of such examinations made of persons dying of other diseases, while suffering from spinal irritation," the results were negative. Indeed it could hardly be otherwise, since the lesions of the disease causing death might easily be blended with those causing spinal irritation, thus rendering the particular pathology not only obscure but valueless. So far as the treatment of the disease is concerned, Dr. Hammond's suggestions are no doubt valuable. He states that:

"The general tone of the system is to be improved by the use of tonics, such as iron, quinine, the mineral acids, and cod-liver oil. In some cases iron, though indicated, is badly borne, causing gastric disturbance and headache. In such cases manganese—the sulphate, for instance—may be substituted in corresponding doses.

The amount of blood in the spinal vessels may be increased by strychnia, phosphorus, and opium. I am very much in the habit of giving a prescription, in cases such as those before us, which generally acts very happily. It is: ℞ Strychniæ sulph. gr. i.; quiniæ sulph.; ferri pyrophosphatis, aa ʒi.; acidi phosphoric dil.; syrupus zingiberis, aa ℥ij. M. ft. sol. Dose—a teaspoonful three times a day, in a third of a tumbler of water, after meals. It should be taken persistently for a month or more.

Opium is a remedy of great power in spinal irritation. It acts with even greater effect than it has been shown to do in cases of cerebral anæmia; to obtain its maximum influence it must be given in full doses two or three times a day. The entire drug is, I think, preferable to any one of its constitutents; a pill of a grain may be taken morning and night."

Certain experimental therapeutists will disagree with Dr. Hammond in his statement that the amount of blood in the spinal vessels is increased by opium; insisting, that although the first effects of the drug might be to increase the circulation, its subsequent effect is to produce, by its action on the vaso motor nerves, a contraction of the vessels, and *a diminished blood supply*, which would be a bad condition of affairs for the poor posterior, already anæmic columns.

There are numerous points in the paper, that might be sharply criticised — but the want of space forbids. We do not deny Dr. Hammond's right to defend his own peculiar theories, on any and all occasions; in fact we sometimes enjoy him greatest when he is in his most aggressive mood; we do not object however to the Publishers of a "Series of American Clinical Lectures," allowing their columns to be used by an irate individual for the purpose of personally defending his pet theory, and under cover of a so-called clinical lecture, attacking men who have not the opportunities to reply. The "posterior columns" of almost any respectable medical journal are always open for such controversies, enabling all parties to have a fair showing.

Dr. Hammond's aggressive attitude is eminently characteristic of the man, and his eagerness to be regarded as the leading American neurologist is only equalled by his ability to make himself the subject of criticism. Dr. Hammond's motive in writing this *clinical lecture* cannot perhaps be more feelingly and tenderly described than in the words of Dr. Jacobi, of New York. (See New York Medical Journal, Vol. xx, p, 428. Correspondence regarding the celebrated Hydrophopia case.) "His offended sensitiveness excited his vaso motor nerves, and stimulated the vessels of his gray substance into anomalous circulation, and his cerebral cells into emotional hyperæsthesia, and he rashly rushed into publicity."

T. C. M.

The American Medical Weekly will hereafter be issued as a bi-weekly.

A number of valuable papers, proceedings of Societies, and reviews are crowded over to the next issue.

This is a good time to form clubs for the LANCET AND OBSERVER for 1877.

Club rates, $3.00 per annum.

The Toledo Medical and Surgical Journal. Edited by Dr. Priestly is a canidate for Professional favors. The first number presents a good appearance.

Notice.

IMPROVED PROCESS FOR SUGAR-COATING PILLS.

Of late years many physicians have lost confidence in the remedial value of some of the "*Ready Made*" or Sugar Coated Pills in the market, notably those composed wholly or in part of quinine or other expensive ingredients. This may be largely traced to the fact that this class of pills have been made and sold frequently at a positive loss to the manufacturer if honestly made. Another reason may have been that the old process of coating it was considered necessary, in arder to preserve the color and appearance of the coat, to mix the mass in such a way and heat the pill in the drying room for so long a time, or to such a high temperature as to drive off the water of crystallization and partially decompose especially such ingredients as the salts of the alkaloidal or metallic bases, so as to impair or destroy their value as remedial agents, and render them so insoluble or to change their character to such a degree as to make their action as remedies very uncertain.

Recently great improvements have been made in this class of goods, so that now quinine and other pills are sugar coated while the mass is quite soft and so as to remain in that condition for an indefinite period. Messrs. Allaire, Woodward & Co. of Peoria, Ills., state that the coating as made by them, being free from resinous or wax-like substances, will dissolve in the mouth in *one-half minute* and the whole pill, composed of quinine and other active ingredients, intended to act promptly, will dissolve *in two minutes.*

They furthermore gaurantee, that each and every pill made by them *positively* contains the full amount of the best quality of each ingredient claimed on the label. It certainly seems that nothing more remains to be desired in this important class of remedies.

We have received samples of a variety of sugar coated pills made by Messrs. Allaire, Woodward & Co., and find them to be elegantly finished, in a soft and very soluble condition and evidently all that the manufacturers claim for them.

THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

Vol. XX.—FEBRUARY, 1877.—No. 2.

Original Communications.

Article 1.—Specific Methods in the Treatment and Investigation of Diseases.

A paper prepared to be read as the retiring Address of the President of Wabash District Medical Society.

By A. PATTON, M. D., Vincennes, Ind.

In the discussion of questions connected with the science of Medicine, the high responsibilities, and important interests to the human race involved, should most assuredly inspire a deep earnestness, and an intense desire to reach exact truth. Mere quibbling, carping criticism or an attempt at scholastic, or rhetorical display by a Medical writer or speaker, should subject him to the severest censure of his professional associates. What the practical medical man wants, and that which the suffering race should have, as a result of investigations by physicians, is unerring truth, axioms that when reduced to practical application will be found as exact, and never failing as are the rules in mathematics. Until methods of investigation are adopted by medical men that will lead to decisions from which there can be no appeal because they are absolutely true, the practice of medicine cannot possibly reach the dignity of an exact science, and its ablest votaries will be very properly classed as mere routinists and experimenters. That it was the much cherished hope of the Father of Medicine, to attain something like certainty in practical medicine, none will doubt who have carefully studied his method of investigation and his strict adherence to the inductive system of philosophy. His first inquiry always was, upon what condition of the human system does each disease depend, and the cause of it. Secondly, what remedial measure is best calculated by its known properties and effects upon the human organism to remove the abnormal condition? He as fully admitted the correctness of the principle "that all theory in medicine, all descriptive pathology, all grounds for rational speculations, all descriptive nature of diseases, and for the framing of experiments, as well as all maxims which aim at the prevention or cure of diseases, must rest ultimately on observed and recorded facts," as does Aitken or any other modern writer on practical medicine. Accuracy of observation was the first lesson he taught, and it is by the daily continued practice of accurately observing diseases and the effect of remedies and recording them in book form that has contributed to advance practical medicine to its present honorable but far from perfect condition. To induce the adoption of better, more rational and scientific methods of observation as a means of securing something like a satisfactory approach to exactness in practical medicine will constitute the main object of this address.

The idea is very prevalent with physicians and it is advocated by many medical writers, that diseases are to be treated upon general not specific principles. Theories in pathology which are given a very wide range of application by their admirers, are made the basis of general rules of practice which I have reason to believe, and will try to demonstrate are unscientific and tend to retard the progress of practical medicine.

We all understand that pathology is divided into general and special, and I do not propose to in any way interfere with this very proper arangement, or offer the least objection to it, for it is right, but that to which I will object is the adoption of such generalization in pathology and medical practice as to exclude the idea of a special pathology, special cause, and specific treatment for each abnormal condition. To the influence of those medical writers and teachers who in distant periods of our medical history, and in a later day invented and promulgated certain general principles in pathology and treatment which though ingenious, plausible, and apparently scientific, were not founded in observed facts or truth, may be attributed much of the confusion and uncertainty that now so strikingly characterizes practical medicine. That there is such a want of uniformity of methods of treatment, even among those who practice the same system as to constitute it an *opprobium medicorum* none will deny who read medical books, medical journals, and attend the meetings of medical societies. Take for instance the great work on the principles and practice of medicine by Austin Flint, and compare its teachings with the works of Tanner and Aitken and you cannot fail to observe that there is an alarming contrariety of opinions as to the treatment of diseases among those distinguished authors. But I will not further dilate upon this branch of my subject as all well read physicians know it is too true. In illustration of the damaging effect to the practice of medicine that has resulted from the injudicious application of general principles in the treatment of diseases, I will refer to the leading principles of Hippocrates, and other renowned writers on pathology and which in a great measure controlled their treatment. Hippocrates belonged to that sect of philosophers who believed that fire is the prime origin of all matter, and that by the collision and the peculiar combinations of its particles which are in perpetual motion the four elements are produced.

From this doctrine his leading principles of pathology were derived and of course in many cases controlled his treatment of disease. His foundation doctrine in philosophy being false, his principles in pathology were of necessity false. Among the errors to which it lead was the adoption of the humoral pathology, an error which prevailed extensively until the beginning of the 18th century. Fortunately, however, the Father of Medicine was unlike many of his distinguished followers in later days, for he invariably, as far as possible made his practice conform to well established facts and not to his favorite theory of general principles, while they too often under valued facts and experience, and gave preference to general principles. But in cases where there was a want of experience and record of facts to guide him, he followed general principles in treatment, just as we do at the present day, and by so doing was led into error of practice just as we are.

The Dogmatists and Empirics, opposing sects in medicine, were controlled in their treatment of disease by general principles, and it must be admitted that both were wrong, and yet both were contending for some methods and principles which were true, the two properly united would have constituted a very satisfactory system of medicine. Themison had the good sense to adopt a middle course, selecting the good points from each, out of which he constructed the Methodic system, which would have been creditable to its founder and an important advance in medical science, had it not been for the introduction again of general principles. His two laws of constriction and relaxation, led him to divide all medicines into astringents and relaxants, and upon these general principles his entire treatment of disease was based, which of course led the practitioner into numberless errors. As a most natural sequence the methodics were compelled to be exclusive solidists instead of humoralists as was Hippocrates, which was another dangerous error.

The Pneumatics had some truth, but by the introduction of a general principle into pathology, which they styled the pneuma or spirits, their system was rendered absurd and their methods of treatment unscientific and often injurious. The great medical philosopher and writer, Galen would have advanced the science of practical medicine in a very high degree, had he not devoted most of his great power to developing and defining the humoral pathology. The four elements, the four humors and the four qualities connected in all the variety of combination, constituted the general principles of his pathology, and upon which was based, his general treatment of disease. The chemists, mathematical, and hydrostatic sects in medicine had nothing to recommend them save their novelty, and mysticism, but tended in a high degree to retard true medical science. Von Helmont and Stahl though very able and hard working men utterly failed to enrich the science of medicine with their researches and labors as they might, if they had not sought to establish certain general principles, which governed their entire treatment of disease.

The Archicus of VonHelmont and the Anima of Stahl were but the wild vagaries of learned but visionary men, and which constituted their ruling principles in pathology rendering their treatment almost inert. At a later period we have the general principle of congestion which constituted the leading feature in the pathology and practice of a large number of western and southern physicians, and still later we have the Eclectics who adopt the absurd principle in therapeutics, that because certain mineral medicines are well known to be injurious in some diseases, therefore, they must not be employed in the treatment of any form of disease and upon this slender and ridiculous proposition they are attempting to build up a new system. But the two great leading general principles of the present day which are doing more to retard the advance of practical medicine than everything else, are "*contraria contraries medentur*" and "*similia similibus curantur.*" The first is as old as Hippocrates, while the other was invented by Hahneman. The one is the leading feature in the pathology and therapeutics of many who belong to the old school of medicine, while the other, together with infinitessimal doses of medicine, constitutes the general and indeed only principles of homeopathy. Neither are true, both are unscientific and must necessarily prevent such investigations and observations by practitioners of medicine, as would lead to real progress and the discovery of infalliable truth. The principle of contraries which is well understood leads to a dangerous error in therapeutics — that of attempting to control the ravages of disease upon one organ by inducing an irritation in another, which though sometimes successful is often injurious and generally unscientific. The use of sialogogues in many forms of disease had its origin in this principle; the almost unlimited, and indiscriminate use of blisters is founded upon the same idea. Active purgation, especially in diseases of the thoracic viscera and brain, is a striking instance of the application of the principle of contraries. And the same may be said of astringents in diarrhœa and dysentery. But then, if the principle is a true one in some cases, and this is not denied, is that any reason why it should be made a leading and controlling general principle in pathology and therapeutics? I think not.

But what shall be said of "similia similibus curantur?" simply nothing for it is too absurd, and too foolish to merit the slightest notice. What if it can be demonstrated in a few isolated instances, that the same article which will produce a disease will also cure it, (a thing that is not true, however, once in every thousand cases,) is that any reason why it should be made a general principle in medicine, controlling the entire plan of treatment? Of course it is the quintessence of nonsence and is not entitled to a serious discussion. And the other feature of homeopathy which maintains that the more a medicine is subdivided the more powerful it becomes is equally or still more unscientific and is in no sense true. The only instance wherein subdivision of a medicine increases its power, is when an important chemical change takes place by the admixture of two or more agents.

In such a case there may be a tremendous power given to an article that was entirely inert before. Eor instance take the bland, sweet, inoffensive and clear, light, oily substance called glycerine, and mix it with nitric acid and we have an explosive mixture that would tear the earth asunder if it was properly adjusted. But the Homeopaths are not afraid to give nitro-glycerine as a medicine, and do so under the name of Glonoine one drop of which, placed upon the tongue will produce a most violent headache. So says the Boston Journal of Chemistry. Another instance of subdivision increasing the intensity of a medicine, is where calomel is mixed with sugar, it becomes so powerful in its action that the one-thirtieth of a grain will produce as much effect as five grains of the original medicine. Why is this? Vulpius of Italy, Thomas of Canada, and others have examined this saccharated calomel, and find that the calomel is converted into corrosive sublimate by mixing it with sugar. This explains its increased power and teaches how infinitesimal doses of medicine may sometimes act very energetically and produce poisonous effects. But upon this part of my subject I have certainly said enough to convince you, that general principles often become obstructives in the way of true medical research. What is the most accurate and scientific method of observing and studying the actions of remedial measures? Is a question of great importance and one not easily answered. As I have before said the leading writers in medical science both ancient and modern, urged the necessity of accurate and scientific investigation of disease, and the effects of remedies and I have demonstrated that the adoption of general principles in pathology and treatment often prevented this. It is well understood and generally admitted, that the study of disease in its specific pathology, etiology, symptomatology and therapeutics, constitutes the only true rational and scientific method of advancing practical medicine in the direction of exactness. But in my judgement we stop short of the point where the best results may be expected from this method of investigation. We have not fully abandoned old and unsafe methods and many of us are still clinging to favorite general principles and theories.

By the specific method of investigation I mean more than is represented by either of the great systems of philosophy, inductive and deductive; both of which have their advocates and which divide our scientific observers into two great classes of philosophers. I propose to maintain a middle ground using the best elements of each, but with a decided preference for the inductive method of investigation. There is as you all know a great practical difference in the two methods. The inductive ascends from the minute parts to the whole, and forces all theorizing and generalizing to conform to known facts and actual experience, while the deductive method begins with a general principle supposed to be true and seeks to connect it with particular cases, bringing down the general into the particular, affirming of the latter the distinctive qualities of the former. This method is especially popular with the Germans, which accounts for the vast amount of wild speculation and erroneous systems in their philosophy and medical science. The deductive method gives a broad range for ingenious and attractive theorizing, which is well calculated to popularize false systems and erroneous methods, leading to the most mischievous results in practice. The bold and pretentious theory that in the fluids of the system is to be found the primary cause of all disease, is an instance of deductive reasoning, and the results of the practice derived from it, is a positive evidence of the dangerous tendency of the deductive system of philosophy.

Again when it was affirmed less than half a century ago that venous congestions constituted the true key to all pathology, the deductions which necessarily followed this general principle in pathology supposed to be true, forced, the practitioners of medicine to adopt a treatment in most diseases which experience has demonstrated not to have been the best. To secure anything like exactness and certainty in medical practice we must severely and absolutely abandon that part of the deductive method of investigation which supposes a thing to be true, before the facts of experience and actual observation warrant such a conclusion. Of course we want fair, truthful, and unerring deductions based upon known facts, but this is more properly a branch of the inductive system. But even the inductive method has its objections which renders it scarcely applicable to investigations in the practical department of medical science. The Americans are eminently inductive in everything, but unfortunately are inclined to adopt small generalizations before acquiring a sufficient basis of facts and experience. In contrast to this, I am urging by the specific method the collection of vast treasures of facts and results of experience, before any attempt is made to form generalizations or deductions. In fact I would almost ignore generalization in practical medicine, prefering to rely upon actual knowledge of minute facts as a guide in practice, and to employ theory only as a measure of explaining the modus operandi of medicine, and as a scientific proof of the correctness of our remedial processes.

Thus we are taught by actual experience and observation, that vaccination affords a protection against variola, but we cannot so generalize this fact as to make it applicable to all contagious diseases, and yet we may hereafter discover certain prophylactics against all severe diseases, but each will doubtless be special not general in its application.

We know that sulphur cures scabies, and we have learned by observation precisely how it acts, but we cannot infer that because it destroys the acari it is destructive of every kind of insect, for we know it is not. But we have the fact, and it constitutes a small part of the science of practical medicine and is worth more than a book-full of theorizing. When Barlow discovered that the painful disease gastralgia depended upon the accumulation of a tenacious mucus upon the lining membrane of the stomach, and that the paroxysms of intense pain were caused by the vain efforts of the muscular coat to expel the morbific agent, a fact in pathology was brought out which lead to the adoption of a specific method of relief, by alkalies, warm water emetics, and mild purgatives which will seldom fail. Another instance of advance in the direction of exactness was the discovery of the antiperiodic properties of cinchonia

The late discovery of the action of digitalis as a special heart tonic, is a most important step in the direction of exact truth, and disposes of a vast amount of erroneous theory and absurd speculation that have environed the history of this valuable drug. Turpentine as a remedy in poisoning by phosphorus, though seldom needed, will sometimes prove of great value, as I saw demonstrated last winter in the case of a gentleman who accidentally emptied a vial of phosphorus into the palm of his hand. Immersion in cold water of course afforded temporary relief by excluding the oxygen, but it had no chemical effect upon the poison, while turpentine instantly converted it into a turpentin—phosphoric—acid which is wholly inert.

The action of the tight bandage around the finger in case of paronychia is specific, because it contracts the dilated vessels which constitutes the essential element of inflammation and promptly aborts the disease. Turpentine does the same thing in the forming stage of the furunculus by stimulating the contraction of the dilated vessels. Cold acts in the same way, hence the advantage of cold water dressings in wounds and after surgical operations, and it explains the benefit to be derived from ice poultices, ice injections and ice taken into the stomach in general inflammation. Aconite, ergot, calabar bean and chloral are supposed to act in the same way by stimulating the contractions of the blood vessels of the parts involved in the inflammatory action. I have found guaiacum to exert a specific action upon the tonsils, and seldom fails to abort inflammation of those little bodies if given in the first stage.

Alkalies exert a specific effect in that form of rheumatism depending upon an excess of lithic acid in the blood, and constitute a safe and effective method of treatment. Carbolic acid is specific in its action in wounds, ulcerations, and many other forms of diseased action by destroying bacteria and other poisonous germs.

Salicin cures dysentery in the same way. Salycilic acid is a specific of the same class. The pinus canadensis in catarrhal affections of the mucus membrane of the uterus, vagina and nares is strictly specific in its action. The mechanical methods of relieving disease come under the same head. They are all specific in their action.

But it will be said that there are a large number of diseases for which there is no known specific treatment, and which must therefore be treated upon general principles, if treated at all. This is unfortunately too true, and it constitutes in my opinion the most prominent defect in practical medicine. It is however, as a means of overcoming this very defect that I am urging upon the profession the importance of the specific method of investigating and treating disease. If we can adopt right methods of study, and have in view scientific objects of investigation, we will then certainly be on the sure road of progress. Then if we are determined to ascertain the true abnormal conditions in each disease, and the actual cause of each symptom, and sign of disease, before we venture to prescribe, we have beyond a doubt struck the right key to a successful treatment leading directly to the adoption of specific methods.

But it may be affirmed that this is impossible, and that we will long remain in ignorance of the special conditions in many forms of disease, their real cause, and as a consequence of the specific treatment required to overcome the abnormal conditions. This if true, will force us to adopt the views expressed by a late writer, that certain diseases being self-limited will get well about as soon without treatment, as with the best with which we are at present acquainted. Better trust our patient to the kind care of nature, than to adopt a line of treatment founded only upon general principles, which may or may not be rational, and true. A principle in practical medicine, which is only supposed to be true, and has not absolute facts, and the results of experience to demonstrate its truth, is a very unsafe guide in the treatment of severe forms of disease. But with the hope of meeting this difficulty and attaining something like uniformity among physicians in the treatment of disease, I urge upon the profession the propriety and advantage of studying disease and the effect of remedies upon the specific plan. Is there any general principle in either pathology or therapeutics, that will apply to the treatment of all forms of inflammation? The old physicians and probably some of the modern, promptly answer this question in the affirmative, maintaining that phlogiston was the dominant element in all forms of inflammation, and that it must be met with bleeding, purgatives, diaphoretics, cooling drinks and very low diet. But late discoveries teach us that both in pathology and treatment our fathers were wrong, for when we come to examine some of the inflammations and their results upon the organism we will readily see the absolute necessity of making the inflammations of each organ, each tissue, each vessel, and each membrane a special study to enable us to arrive at anything like a successful and scientific treatment. Would it be scientific or rational to treat an inflammation of the pleura, and of the colon upon the same general principle? One being a serous membrane, the other a mucus membrane, would demand an essential difference in treatment. But another controlling reason for special treatment is the uniform difference in the products of inflammation in the two membranes. So must we adopt a specific and not general method of treating these and other inflammations. To triumph over this serious difficulty in our pathology and therapeutics we must continue to work steadily in the direction of a special pathology and specific treatment. To meet the difficulty in a scientific way the inflammations of each organ and tissue will have to be studied with a view to the adoption of specific treatment. Ascertain the special pathology of each morbid condition, and we can then intelligently adopt specific means of relief. For instance it has been ascertained that in pneumonia there is a high degree of hyperinosis, upon which mainly depends the most troublesome and dangerous features of the disease. To control this morbid condition in some degree, and prevent the known and certain results of the deposition of fibrine in the air cells and upon adjacent tissues, the production of embolism, and other morbid changes, some remedy should be employed, the known properties of which would render its action specific in overcoming hyperinosis. If such a medicine is known to the profession it should at least constitute the leading remedy in the treatment of pneumonia. Fortunately we have that medicine in carbonate of ammonia, which is far more certain as a defibrinizer than is quinia as an anti-periodic. Cerebro-spinal meningitis is a disease that has been studied precisely in the way I am advising, and an engorged and inflammed conditon of the cervical portion of the spinal cord and its membranes, together with the medulla oblongata and the basilar portion of the brain, has been found to exist in all cases where post mortems have been made. To overcome this morbid condition we give hydrate of chloral, ergot, and the calabar bean, which have the power of exciting the contractility of the vessels of these parts. With this treatment many cases may be cured, and I know that some have been which came under my own observation. But to insure success we must rely upon this specific method, and not resort to all the medicines and remedial measures at our command, which we too often do. I have witnessed the most wonderfully good effects from hydrate of chloral in some forms of cerebral disease, while in others it is positively injurious. We must study its specific action and use it only in a scientific manner. Inflammation of the parotid glands and the tonsils, bodies situated very near each other, require treatment altogether different. The course of disease in the two has to be carefully studied and methods of treatment adopted which will be specially suited to control the leading morbific element in the two diseases. In tonsillitis, guaiacum is a prompt and useful remedy, while in parotiditis it is useless. In the latter muriate of ammonia is our best and surest medicine. In carbuncle, carbolic acid used hypodermically will always abort the disease if employed early, while in gastritis it would be a dangerous medicine.

Without pursuing this line of thought further I will express the hope that each one of us will adopt the method of investigation suggested in this paper, and by closely observing the symptoms, signs, progress, duration, and especially the effect of remedies in disease, and reporting the results of our observations to medical societies, or through medical journals, we will at least do something towards advancing the science of practical medicine in the direction of exactness. It will be observed that I use the term specific in an adjective not substantive sense. I mean something far above and beyond the vaunted nostrums and advertised specifics of the present day, which possess no real merit and are an imposition upon a credulous public, every one of which ought to be suppressed by law, for they are really doing more harm, and causing more suffering, besides robbing the people of their hard earnings than any one of the virulent causes of disease. Their popularity depends not upon any beneficial results that have followed their use, but entirely upon the amount of boasting and blowing that have been done in their behalf in the way of advertising. But if they were innocent and safe preparations in the diseases for which they are recommended, there would be less cause for complaint, but they are not by any means the simple and harmless medicines they purport to be; for every physician knows that they often aggravate all the symptoms of the diseases for which they are used and that a large number of the obstinate and severe cases of disease which come under the care of physicians, are made so by taking patent medicines and pretended nostrums. Large numbers of children are destroyed annually by taking soothing syrups and other anodyne nostrums.

It will however, be denied by many that such certainty in the treatment of disease as I am contending for can ever be attained. Disease is so modified by age, sex, climate, constitutional peculiarities, idiosyncrasies, change of types, as well as by morbific influences that it will be impossible, say the objectors to reach anything more than vague generalities in practical medicine. This to me is a most painful statement and I am not willing for myself, or for this society to accept such humiliating teaching without at least making the effort to reach higher and better results, by patient research and careful observations at the bedside of the sick, and by making frequent post mortem examinations. If other sciences can attain exactness by the efforts of their earnest votaries. If the astronomer can so far bring his science to perfection as to enable him to predict the eclipses of the sun for a hundred years in advance, and trace the erratic course of comets from point to point in the vast expanse of the starry heavens, and tell precisely when they will reappear at a given point near the earth. If he can survey the dimensions, describe the form, define the exact movements, measure the distances and even weigh the planets and demonstrate the accuracy of his statements by unerring testimony. May not physicians hope, and confidently expect to attain higher perfection in practical medicine than now exists and which can only be reached by specific methods of investigation? Should we not be encouraged by the great progress that analytical chemistry has made in the last one-hundred years? Rising from a system of mysticism and vague generalities to an exactness and perfection that has astonished and electrified the world, it is now lending its aid to every branch of human industry and doing more to stimulate, develop and perfect our knowledge of the natural sciences, and of practical medicine, than any other inflnence known to man.

Are we physicians to idle away our time, while following the *ignis fatuus* of visionary theories, and unmeaning general principles, and allow the the hard working, persevering, and determined votaries of other sciences to outstrip us by availing themselves of the advantages of the very methods of investigation I am suggesting? Geology would never have emerged from the dark labarinth of confusion and error in which the beginning of this century found it, had it not been for those students who left their closets and abandoned their generalizing methods, shouldered the pick and shovel, and sought for truth amid the deposits, debris, and well preserved remains of the ancient past. When this specific method was adopted that which was but a wild romance began to assume the form of a grand and beautiful reality, until now Geology is numbered among the exact sciences, enabling us by observing as ingle rock or fossil, to determine precisely the period to which it belongs and the kind of vegetable and animal remains that are to be found in that locality, also the minerals, water, and many other facts of great interest and use to farmers, mechanics, and commerce. This was accomplished by studying each rock, each fossil, each plant, and animal, each metal, separately, and then comparing their relations one to another, until at last an unerring principle was discovered which is as inflexible and unerring as the granite that forms the foundation of our earth. If philosophy, law, political economy, navigation, agriculture, mechanics and natural science have their certainties, evolving uniform and unvarying results—why not claim the same for practical medicine?

Let us begin now to study medicine as philosophers, as reasoners from cause to effect, determining never to abate our efforts until each pathological condition and cause upon which depends every symptom and physical sign of disease is fully demonstrated and understood. Then it will be easy to meet by scientific and efficient processes every well marked indication for treatment. We often hear physicians say they never treat any two cases of disease alike. This statement might be justified upon rather ingenious though not entirely safe methods of reasoning. They may properly insist that the difference of stage at which treatment is begun, and the apparent results of the disease to the organism, of course demands change of treatment, for it is well known that most cases of fatality depend upon the secondary not the primary effects of disease, and if the physician is called in too late to prevent these abnormal changes he must direct his treatment to their removal and the protection of suffering organs from further destructive effects. For instance in pleuritis it is not the primary inflammation of the pleura that causes death but the morbid deposits, as serum, lymph, pus and false membranes which interrupt the functions of vital organs. Pneumonia does its mischief by the deposit of fibrinous and other morbid matters in the air cells, and by extending inflammation to adjoining tissues as a result of excess of fibrin in the blood. These are known facts which affords a positive indication for treatment, which cannot and will not be ignored by any observing physician. It does not, however, invalidate my position. To arrive at anything like certainty as to the action of a medicine we must be close observers of its effects, and to do this properly our remedies should be given separately. The plan so popular with many, of combining a large number of medicines not only prevents accuracy of observation and correct conclusions, but often does positive harm. I would prefer to meet each indication with the medicine or remedy best calculated to overcome the abnormal condition. If digitalis is indicated, give digitalis and nothing else with it, if quinine is needed, or any other medicine, give it at the proper time, but do not mix the two together. There is no necessity for this practice, and there are numberless incompatibilities both as to chemical affinities and effects upon the system which are not yet understood, and which either render the mixture inert, or too energetic or even poisonous. It is but lately that it was discovered that belladonna and opium were almost absolutely antagonistic in their action, the one destroying the effect of the other, a fact that is now being employed with great advantage in cases of poisoning. This has also lead to the discovery that belladonna is a powerful reactive agent in collapse, in cholera, congestive chills, hemorrhage and sudden prostration from shock in injury. In this way step by step, practical medicine is progressing, and all that is necessary to rapidly advance towards certainty and exactness is to adopt as a universal method of investigation, that which is now only occasional, that of studying disease and the actions of medicine specifically and having in view the high and noble object of attaining certainty in practical medicine. If physicians are not on the alert in this respect, they may soon discover that other scientists, philosophers, and even political economists will leave their special fields of inquiry, and come over to ours where the uncultivated spots are so green and inviting to the searcher for truth. Even now there is a Congress announced to meet at Brussels next year for the purpose of discussing the best means of protecting, and saving human life, when this very question of medicine and pharmacy will be discussed by the great representatives of social, natural, medical and political science, and it would be rather mortifying to have this Congress composed largely of non-medical men, as it will be, to announce the true method of reaching uniformity, and certainty in the most important branch of medical science. I was pleased to see a suggestion in the Indiana Journal of Medicine, a few months ago, from a member of the Wabash District Society, which indicates that he is on the right road of investigation. In closing an interesting paper on milk-sickness he says: "That an attack of the disease seems to confer complete immunity from attacks of malarious disease for a long time after recovery. Could we find out exactly what the poison is, and how it is to be obtained and controlled, as we now do some other powerful poisons, might we not be on the right track to utilize that which is now an unmitigated evil, as the long sought antidote for malaria?" This is precisely in accordance with the methods of investigation I am contending for, and I must recognize my namesake, of Princeton as an able coadjutor. Let the discovery of a single fact in pathology, etiology, or symptomatology lead on to the establishment of some certain and specific method in therapeutics. In this way, by long continued labor and perseverance, I firmly believe that we will at last attain absolute certainty in the treatment of most diseases.

We need more scientific achievement in medicine and less of wild theorizing.

We want facts—we want accurate records of experiences at the bedside of the sick, and after these have been gathered together like wheat in the granaries; we then want great men who possess philosophic minds and strong reasoning powers, to winnow the unimportant from the essential and so generalize them as to establish unerring and inflexible laws in practical medicine, which will lead to uniformity of practice, and harmony among all intelligent and regularly educated physicians. It seems to me that we have a right to expect far more certainty in our therapeutical processes than is now claimed. We must not be satisfied with the bare assertion of one man, that nitrite of amyl is a specific in a particular form of epilepsy, and that its action is antagonistic to that of chloroform, or of another, that it is a specific in sea-sickness, nor with the statement of the distinguished writer Corso, that artificial respiration is the best treatment for apoplexy, nor that guarana is a never failing remedy in sick headache, but we must ourselves become patient and accurate observers of the effects of these remedies, and then report the results of our labors to our medical society, or through a medical journal for further comparison with the observations of others. The statement of one man is all right as far as it goes, as it forms the starting point which should lead eventually to the discovery of exact truth. One of the dangerous results of too much generalizing, is that it causes us to use the same medicine, or the same class of medicines in far too wide a range of diseases. We must dismiss from our minds the idea that there are great cure-alls in medicine. If an article will cure any one disease, or even prove a certain remedy in a single abnormal condition we should be satisfied, and place such a medicine in the very front rank of our materia medica. It is a great error to expect a variety of results from the same agent, and to attribute important remedial virtues to it in almost all forms of disease. Not many decades have passed since bleeding was recommended by authors, and practiced by physicians in a large majority of the diseases to which flesh is heir. I have taken the trouble to ascertain the number of diseases in which it is recommended by Cullen, and find that he used it in forty-seven diseases, many of them totally differing in pathology and course. Amongst the number are tooth-ache, hysteries and hooping-cough. Flint has reduced the number to nineteen, but Mackintosh has largely, more than either Cullen or Flint. Condie in his book on the treatment of diseases of children, uses a formula composed of calomel, ipecac and extract of hyosciamus in almost every disease treated of. It is in opposition to such generalizations as these, and in favor of a strictly specific method of investigating and treating disease, that I am now insisting upon, and hope that the members of this society will give me their cordial co-operation.

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Art. 2.—Dental Caries. Its Influence upon the General System. Its Prevention.

A Paper read before the Cincinnati Medical Society.

By WILLIAM D. KEMPTON, M. D., D. D. S.

Mr. President and Gentlemen of the Society: The subject of this paper is one that has hitherto failed to attract much attention in the ranks of the medical profession; but, nevertheless, it is one of great importance to the patient, for if its nature and the method of preventing it be pointed out to him, and he profit by the advice, years may be added to his life.

Caries of the teeth differs in many respects from caries of bone, for while the latter generally depends upon some internal cause, such as inflammation, the former is almost entirely due to the direct action upon the teeth of external agents consisting of various free acids or acid compounds.

The causes predisposing to this affection are first a debilitated condition of the general system and impoverished condition of the blood, as found in those subjected to malarious influence or to some of the various chronic diseases. In persons who neither get enough nor the proper kind of food, in fact any cause that lowers the vitality of the system, predisposes to this affection, for the teeth being a part of the economy, their nutrition is interfered with by any cause lowering the vitality of the rest of the system, and as it is well known that vitality resists decay, it is easily seen how this will act as a predisposing cause.

Secondly; in the female, pregnancy is quite a common predisposing cause; for there is such a demand made upon her system for nutritive material for the fœtus, that her own tissues are often left without a sufficient quantity.

As ossific centres make their appearance in the fœtus as early as the fifth week, and as the teeth are largely composed of phosphate of lime, the materials required for their nutrition are not supplied to them in proper amounts, by reason of the ossification going on in the fœtus, and consequently, during gestation the teeth of the mother are often found to decay very rapidly.

The teeth of the child may be injured at this time also, for the ossific matter begins to be deposited in the germs of the permanent teeth as early as the fifth or sixth month of gestation, at a period when ossification is going on very actively in the different bones, and consequently, if there is a dearth of lime salts the enamel of the teeth will not be well formed, but will be soft and easily acted upon, and not only that; it will not be complete for portions of the crown, as the fissures in the grinding surface of the molars or the approximate surfaces of the teeth, will be found devoid of enamel. Lactation also acts as a predisposing cause, for the milk contains .2 per cent. of earthly salts and unless there is enough taken in in the food, the tissues of the mother will have to suffer.

Thirdly; thermal changes take a part in the predisposing to caries, as for instance opening the mouth when the surrounding atmosphere is very near zero, and allowing the cold air to strike the teeth will often crack the enamel, as the dental structure is a very poor conductor of heat, the surface will contract suddenly before the deeper portions have been affected, and hence a solution of continuity which allows moisture and foreign substances to penetrate to the dentine.

Eating ice cream at a temperature of 32° F. and then drinking coffee at 132° F. or, even higher will act in the same manner. Irregularity of the teeth, death of the pulp, etc., are also predisposing causes.

Among the exciting causes are, first the administration of acids or acid compounds as medicines, such as the mineral acids, tr. ferri chloridi, etc. As the vitality of the patient at the time of their administration is generally not up to the normal standards these agents act far more readily than they would were he in perfect health. These acids form new compounds with the inorganic elements of the teeth, some of them being very soluble and others, not so much so.

All acids do not produce decay, for those whose affinity for calcium is less than phosphoric acid are unable to displace, it and hence are inactive; such are carbolic, acetic, carbonic acids, etc.

Secondly: decomposition of food in contact with the teeth is the most fruitful cause of dental caries, the food lodges under the margin of the gums, between the teeth, and in the fissures in the grinding surface of the molars and bicuspids, it remains there where the conditions favoring speedy decomposition are ever present; namely: a temperature of from 90° to 95° F., a free supply of air and moisture, and consequently within a short time it will be found that the putrefactive process has been set up, and various elements have been liberated which being in their nascent state combine very readily with other elements present, viz: oxygen in the air, or the hydrogen liberated in the putrefactive process, and from acids. It may be only a molecule or two, *but they are in their nascent state, and are in contact with the tooth and hence act on it very readily.* This compound is generally soluble and is soon dissolved by the saliva, and a minute cavity is formed, and then another molecule of acid is formed and washed out, and the cavity increases in sizs and affords a lodgement for greater amounts of food, and so the disease advances in almost a geometrically increasing ratio.

The function of the teeth is mainly mastication of the food, but when they are diseased that function is not properly performed. If they are sensitive to pressure, as is very frequently the case with carious teeth, the food is not thoroughly chewed, but is bolted, and as it goes into the stomach in comparatively larger pieces, instead of being finely comminuted and thoroughly mixed with the salvia, it requires a much longer period than it should to digest it. The same condition of affairs will result from a loss of the molars and bicuspids. This is one of the causes of that very common affection dyspepsia, and should be borne in mind in treating that disease.

There is another result of carious teeth that must not be overlooked. The putrescent materials in the carious cavities continually emit fetid gases which have about the same smell as sewer gas, and in fact arise from the same source, viz: the putrefaction of animal and vegetable matters. As most people breathe through their mouths, these foul gases are carried in with the inspired air and circulate freely through the lungs and there exercise their noxious effects, and further, the presence of this putrid material gives the patient a bad taste in his mouth and thus vitiates his appetite and he feels "bilious,"and this decaying material mixed with the salvia goes into the stomach, and is there reason to doubt that it would have the same effect as sewage? For it arises from the same source. In view of these facts can any person be surprised at the numerous cases of dyspepsia?

Prophylaxis, in this connection it may be said that if proper care is taken of the teeth, dental caries would be a rare thing, for if the causes are removed the results will not follow. Therefore the general health should be looked after; good food, tonic remedies, etc., enjoined whenever indicated.

The pregnant female should be supplied with materials for food which contain the lime salts, such as graham bread, corn bread, fish, milk, etc., in order that her teeth may not be robbed of their proper amount of nutritive material, and that her child may get enough to insure the proper development of its teeth. This treatment should be continued during lactation, for the same drain on the mother's system continues during that period, and if she is debilitated the syrup of the hypophosphites is indicated in combination with, tonics.

Marked thermal changes should be avoided, as breathing through the mouth when the temperature of the surrounding atmosphere is very low, or eating ice cream directly after having partaking of of hot coffee, etc.

Irregularity of the teeth should be corrected, as by reason of the irregularity, a thorough cleansing of them is not always accomplished.

The mouth should also be kept in a healthy condition, all acidity should be properly treated. When it is deemed necessary to administer the mineral acids, tincture of the chloride of iron, etc., they should be taken through a glass tube or a straw, and directly thereafter, the mouth should be thoroughly rinsed out with a solution of sodium carbonate in order to neutralize all remaining portions of the acid.

And lastly, the patient should be enjoined by all means to keep his teeth clean by the use of a tooth brush, thoroughly applied after each meal, and with a piece of silk floss drawn between the teeth, or a tooth pick to dislodge the accumulations from between the teeth, and then to force water between them and thereby remove the deposits from under the margin of the gums.

And further to avoid eating candy, for much of it contains impurities which act directly on the teeth; but even pure candies will produce caries if the mouth is not thoroughly cleaned after eating them, for they are mostly very adhesive, and during their decomposition lactic acid is formed, which is one of the most vigorous agents in producing decay, as it dissolves both organic and inorganic constituents of the teeth. All decayed teeth should be either filled or extracted, as they are aiding in keeping up the difficulty.

The object of this paper was not to present an elaborate treatise on dental caries, but simply to point out its causes and to direct the attention of the medical profession to them, so that in their daily practice they might drop a word here and there among their patrons which if heeded, will prove of incalculable benefit, for, "an ounce of prevention is worth a pound of cure."

Some may think that the extent of the exciting causes has been exaggerated, but there are many people, otherwise intelligent, whose mouths are literally reeking with filth, who know as little about the use of a tooth brush or tooth pick, as a Modoc Indian does of a telescope; whose breath would rival the odor arising from any cesspool, and yet they wonder that their teeth decay. The only wonder is that they have any teeth.

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Art. 3.—Bronchitis.

By ROSS C. RUSS, M. D., Hillsboro, O.

There is perhaps no one disease that the Human family is more likely to contract than that of bronchitis; no age or condition in life being exempt from it, and not unfrequently is very fatal both to the aged and to the infantile state.

It may also be of the most simple type of catarrhal inflammation to that of the most grave and protracted; not unfrequently compromising the life of the individual whom it attacks.

The bronchio-pulmonary membrane, together with its glandular appendages being the seat of the disease.

Considering the normal histological anatomy of this important tissue, it is found to abound with numerous blood-vessels, lymphatics, and mucous follicles, together with a flat expansion of epithelial structure which not only lies as a covering of the mucous tissue, but also invests the follicles; the blood-vessels and lymphatics are exceedingly minute forming a closely set plexus. The incipient stage of the disease is active hyperemia of the minute capillary blood-vessels thereby producing derangement of the healthy nutrition of the part, and at first producing a diminution of the follicular secretion, but sooner or later it becomes copious, in many cases, and especially in infants by the augmentation of this secretion interfering with the normal interchange of the gasses, the child (unless relieved) soon becomes asphyxiated. Pathologically considered while this disease is principally confined to the larger bronchial structure it is not so dangerous; but it too frequently occurs that the inflammation passes from above downward in the same manner as an erysipelatous inflammation does on the cutaneous surface, producing thereby the more grave form of bronchial inflammation and is usually designated by some medical writers as capillary bronchitis.

The secretion at this stage of the disease is moreover very copious and tenacious, and its elements pathologically considered consists of pus and fibrin, with epithelial cells together with mucous of the larger tubes.

Bronchial inflammation may effect at this stage of the disease the parenchimatous tissue not as a direct inflammation of that part, but simply as a secondary result. The bronchi becoming obliterated by the excessive secretion; the air gradually finds its way out though imperfectly, through the obstructed tubes, the expiratory effort so long as there is air in the vesicles constantly tends to dislodge the obstructing secretion; therefore, while the entrance of the air is constantly opposed to its exit, the air-vesicles of the lobules which are beyond the place of obstruction become completely emptied and collapsed.

The result of the morbid process is solidification of the lobule or lobules of the parenchimatous tissue and not "lobular pneumonia" as hitherto taught by some pathological writers.

The condensed lobule or lobules do not remain in this state for they suffer from innutrition and sooner or later become shriveled and atrophied, the small bronchial vessels become occluded and undergo softening and liquefaction.

This stage of the disease not unfrequently puts on a chronic character with harrassing cough and copious expectoration, with marked anemia simulating tuberculosis; but the differential diagnosis may be easily made out by the accurate diagnostician, by the physical signs, with the aid of the thermometer, and according to my repeated examinations of cases in this disease and in tuberculosis I am convinced. If there is daily exacerbation with an increase of body temperature, of at least not more than 1-5th of a degree with gradual loss of body weight, with the physical sign of a peculiar dulness on percussion which is characteristic of tuberculosis; and the absence of the clear resonant sound which is characteristic of bronchial inflammation—by a careful study of the diacrotic phenomena of the symptoms of bronchial inflammation and tuberculosis, the two diseases cannot easily be confounded.

Therefore in the enunciation of bronchial inflammation with its sequelæ, and by a definite law that a collapse of a lobule or lobules of one lung, not unfrequently eventuates in vesicular emphysema by an increase of volume of those portions of the pulmonary tissue to which the air has access, compensates for the diminished volume of the collapsed, shriveled, atrophied, and very frequently liquefied portion of the lobule or lobules of the lungs.

Therefore at this stage of the disease the breathing is with the greatest difficulty; the patient not unfrequently experiences a dread of suffocation, owing to the imperfect reception and distribution of atmospheric-air into the air-cells of the lungs.

The physical sign of the emphysematous complication of bronchitis is characterized by incompleteness of the expiratory act, the thorax remaining very prominent over the emphysematous lung; upon percussion a resonant sound is elicited, and also the vesicular murmur is rendered indistinct owing to the confinement of the air in the dilated air-vesicles.

The autopsical appearance of an emphysematous lung as a complication, is that the dilated air-vesicles may be seen clearly through the pulmonary pleura, and upon close examination of the parts, are pale and quite white, the lobules are dryer than normal and cannot be easily emptied of air. The capillary vessels are obliterated, caused by the distension of the air-cells, thereby causing the lobule or lobules to suffer by innutrition and ultimately softening and liquefaction.

The treatment of bronchial inflammation should be conservative, it being self-limited and cannot be jugulated at once by any medical agent. It is, but too often, that the treatment of this disease is spoliative, depriving the patient of, and interfering with the healthy nutrition of the system.

Therefore most, if not, all the medicinal agents designated as expectorants is contra-indicated—by interfering with the function of digestion and assimilation—thereby *lowering the vital forces* of the system, and ultimately producing innutrition. The tendency of bronchial inflammation is to debility; therefore it should be borne in mind, that the alimentary substances constituting the proper elements of nutrition, *i. e.* the aqueous, albuminous, saccharine, and oleaginous; these should be given in proper combination and at stated intervals for the maintenance of nutrition. The saccharine and oleaginous should be in excess of the other alimentary substances for they can be taken in smaller quantity and are greater fat producing materials. For it is desirable that the reparation of the tissues should keep *pari passu* with their disintegration.

The medicinal treatment if acute bronchial inflammation should be commenced with wine of ipecacuanha, given with the view to unload the bronchi of the excessive secretion and to allay the irritability of the vagus nerve—but, should only be given in the first stage. After the subsidence of the acute stage I have witnessed the best results from the following:

℞	Quinia sulphas,	ʒiij.
	Acid phos. dil.,	℥ss.
	Syr. Tolu,	℥ss.
M.	Aquæ destil.,	℥iij.

Sig.—A dessert spoonful every four hours.

The dose should be increased or diminished according to age of the patient. For the very object which is to be obtained is to produce sedation over the turgid and relaxed capillaries of the mucous tissue of the bronchi; at the same time increasing the tonicity of the part.

When this disease assumes a still more grave form with its sequelæ, solidification, and ultimately softening of the lobules of the lung tissue with great innervation of the system. The following should be given:

℞	Spts. vini gallici,	℥vj.
	Glycerin,	℥ij.
M.	Tinct. Hyoscyami,	ʒiij.

Sig.—Teaspoonful every four or five hours.

The dose to be regulated according to age of the patient.

These medicinal agents soothe the harrassing cough, aids digestion, assists assimilation, and *prevents undue tissue change.*

There is perhaps no other disease in which counter-irritation has a better effect than in that of bronchial inflammation, when applied so as to produce a continuous fullness of the cutaneous capillaries of the chest.

Baths or sponging with chloride of soda, with friction to the whole cutaneous surface judiciously regulated so as to keep up healthy action in the emunctories, and cause thereby elimination of the morbid products of the system, is highly indicated.

When the cough becomes so harrassing as to deprive the patient of rest—for it should be remembered that sleep has a great tendency to recuperate the enervated system; a hypodermic injection of sulph. morphia and sulph. atropia should be given at bed time. Laxatives only should be given to overcome constipation, and then the *Pulv. Glycyrrhiza Comp.* of the *Prussian Pharmacopœia;* be given in doses of a teaspoonful in a wine-glassful of cold water until an alvine discharge is procured. If diarrhœa exists tannate of bismuth is indicated. These measures with the indications, timely met, and the hygienic laws strictly observed and enforced throughout the whole progress of the disease will generally be sufficient for the management of bronchial inflammation and its concomitant sequelæ.

Art. 4.—Milk Sickness.

A Paper read before the Inter-State Medical Convention, held in the City of Toledo, on the 28th, 29th and 30th days of November, 1876, by

W. H. PHILIPS, M. D., of Kenton, Hardin Co., Ohio.

In obedience to a formal request, made by the North Western Ohio Medical Association at its last session; I have the honor of presenting for the consideration of the convention the subject of milk sickness.

In opening this discussion, I am not unmindful of the fact that the subject is one of no practical interest to most of you; and that there is perhaps some degree of opprobrium attached to the very name of milk sickness, for the reason that hitherto there has been such a discrepancy of views held and expressed with regard to the cause and nature of this disease, amongst those who have had opportunity of witnessing its peculiarities. I trust however that its discussion may prove to be interesting, not only because many of you will yet be called upon to meet and treat this disease, but because of the scientific interest which it possesses.

I shall attempt to eliminate such grains of truth as I may find in the literature of this subject, from the great bulk of chaff and rubbish with which they are surrounded, and to present only such facts, as seem to have been fully confirmed and generally admitted — these with my own personal observation, made from a somewhat careful clinical study of this disease at the bedside, from time to time, for a period of over twenty years.

The history of this disease coincides with the early settlement and transition from a state of nature to a state of cultivation of the counties in which it does now or has heretofore prevailed. Its prevalance so far as I am informed is limited to small portions of our own and a few of our neighboring states; particularly those states immediately west and south of Ohio. Within these general limits, numerous small and generally well defined areas are found, in which there occasionally prevails a disease, termed trembles when it affects domestic animals; and milk sickness when it affects mankind. The physical geography or topography of the country does not seem to influence it. It is found in localities among the Green River hills of Kentucky, it occurs in some localities along the Wabash River in Indiana, as well as here and there in our own heavily timbered uplands in Northwestern Ohio. In many localities where it formerly prevailed to a dangerous extent within the memory of the present generation, as in Green and Madison counties in the state of Ohio, it has now by reason of the cultivation of the soil been entirely exterminated. In short, the disease may be said to be rapidly disappearing before our advancing civilization. Infected localities are found to be uninfluenced by the quality of soil or state of drainage, whether the soil is underlaid by rocks of lime, sand or clay, whether watered only by surface ponds or by pure running springs and brooks. It prevails equally in malarious and in non-malarious districts. It is even yet met with in small infected localities in some of the hilly counties in southern Indiana and in Kentucky where ague either never was or, has long since disappeared. While it occurs most frequently in summer and in autumn, it has been observed in all seasons of the year. I remember distinctly of attending a well defined and fatal case of milk sickness in the winter of 1868, when the weather was intensely cold and the ground covered with snow.

When a district becomes once infected, it seems to last indefinitely, nothing but clearing off the timber and cultivation of the soil is known to exterminate it. In districts where it prevails, it is usually first observed in the domestic animals, cows, calves and oxen most frequently; sheep and lambs often; horses and mules occasionally. It does not usually attack animals directly after known exposure. Often many days, weeks and even months intervene, from the time when cattle have visited districts known to be infected, until the first symptoms of the disease are manifested. So generally is this fact recognized that suspected cattle are often violently exercised, as a test of their liability to the disease, before they are purchased or used.

It is also a well known and conceded fact, that this disease is capable of being transmitted from one diseased animal to another animal of the same, or of a different kind in health, under certain limited conditions. Thus a cow infected, may through her milk communicate it to her calf, or to persons using of her milk or butter, or if the uncooked flesh of an animal be eaten, the disease will be eventually reproduced in those using it. Carnivorous animals thus contract the disease, by feeding upon the flesh of one dead of trembles. It is not unusual where persons suffer from this disease, to find at the same time calves using from the same cow's milk, sick with trembles; while the cows are to all appearances in perfect health. The dry cattle are much more frequently attacked with trembles than cows which are secreting milk in abundance. There are very many facts which tend to show, that people rarely contract the disease from the use of butter or beef, as the indiscriminate sale of butter and beef from infected localities and its rare occurence among its consumers. There are also many facts which tend to show, that people contract the disease in the same manner that animals do, *id est.*, from the ingestion of the disease poison with their drink, and probably from the air they breathe, as well as with their food, inasmuch as well authenticated cases occur, where the patient denies having used either milk, butter, cheese, or fresh meat for months prior to his attack. That the disease called trembles in domestic animals, is the same as that which is called milk sickness in mankind, is generally conceded both by the profession and the people. I have made frequent and careful observations with a view of settling this question definitely in my own mind, and have no further doubts for the following reasons:

I have observed in animals the same muscular debility and decubitus, which characterizes the disease in mankind. Animals lay completly prone, with their heads resting upon the ground for support, they become utterly indifferent to all sense of fear or danger, the wildest of them will whine under the prostrating influence of this disease, and suffer themselves to be handled in any manner, without an effort at resistance, escape, or seeming sense of fear. We have observed in them the same peculiar impairment of the organic functions which is so characteristic of the disease in mankind when suffering from milk sickness, and finally, when death occurs; it is by asthenia. Post mortem examinations made and reported by Dr. I. K. Woods of Van Wert, Ohio, and by Dr. J. V. Wayman of New Castle, Indiana, and many others, give the same negative results, no uniform organic lesions being found. All these points of similarity, as well as many others that might be described, were it a seriously questionable point; leads me to the conclusion, that the pathological processes of this disease as observed in men and in animals are as nearly identical, as could be expected in organizations so dissimilar; and that they are the result of the action of the same morbific agent or disease poison.

ETIOLOGY.

When we come to a study of the pathogenesis of this disease, we find upon record an infinite diversity of opinions. One cannot help being astonished at the chaos of facts and of allegations adduced in support of the various theories, advocated as to the real or supposed cause of this disease. Many writers, perhaps a majority of them, attribute this disease to the ingestion of some vegetable poison, by the herbivorous animals—and thence its propagation. Of these a part believe it to be caused by the eating of the *eupatorium ageratoides*, or white snake-root, that beautiful flowering plant that whitens so many of our woodland pastures during the autumn months. It is alleged by many, that they have actually fed this herb to animals, and by it produced the disease. (See an article in the Ohio Agricultural Report for 1864, by one Vermilya.) Also an article on file with the Secretary of the North Western Ohio Medical Association, contributed by Rev. William Jones, M. D., late of Findlay, Ohio.

Others there are who think it is caused by the *Rhus toxicodendron*, or Poison oak. The advocates of this theory are quite as positive in their statments of alleged facts, and of the accuracy of their observations, as the former. Dr. J. W. Crook, in an article published in the North Western Medical Journal of Chicago Ill., in November, 1857, entitled: Twenty propositions on milk sickness, says in proposition 10: "It was the opinion of the late lamented Dr. Drake, that the disease is caused by cattle eating a species of the Poison oak—(*Rhus toxicodendron*) and from observations incited by reading his paper, I am strongly of the same opinion." Dr. J. J. McElhenny of Dayton Ohio, who was quite familiar with this disease as it formerly prevailed in Green and Clark counties in Ohio, and who bestowed a great amount of care and study to fairly ascertain its cause; has stated in a paper recently prepared by him, and read by his son, before the N. W. O. Med. Association at its session at Defiance, Ohio, in November, 1875. That he has "fed the *Rhus toxicodendron* to cattle and produced the class of symptoms known as trembles," "that he withheld the poisonous herb and permitted them to recover and by the same means he has produced again and again the disease." Dr. Byford, in an article published in the Nashville Medical Journal, December 1855 says this: "whatever this poison may be, it resembles in some of its effects very closely, the phenomena produced by *animal* poison, one of these is that it undergoes multiplication in the system, from a small amount received it so far increases as to make every part of the system through which it circulates, so violently poisonous, that when a very small portion of it is eaten, sets up the same action in another animal, and so the process might be carried on *ad infinitum.*" Dr A. Fulton of Bellefontaine, Ohio, and the late Dr. Williams of Ada, Ohio, have both written recently upon this subject, and have cited quite an array of facts, tending to prove, that the causes coming under their observation, was produced by the use of drinking water at certain specified localities, impregnated as they supposed by some poisonous mineral.

Dr. John Pickard of Park Co., Indiana, in an article published in the North Western Medical Journal in June 1857, says:

"From observations and experiments which have been made when citizens have suffered severly from the loss of property, and from the loss of the lives of those still dearer to them; we deduce the following conclusions. 1st: Milk sickness is caused by a poison which is generated near the surface of the earth, from some peculiarity of the soil, or of the soil and atmosphere combined. 2nd: The poison is a mineral or heavy gas, which appears to be produced in the night, and to be destroyed or rendered inocuous by the rays of the sun. 3rd: A thorough cultivation of the soil will destroy it. 4th: It may be communicated from one animal to another by milk or flesh."

Malaria has also been suggested as the possible cause of this disease. Doctor G. Volney Dorsey, of Piqua, Ohio, contributed a paper to the CINCINNATI LANCET, as early as July, 1847, in which he advocates the malarial origin of this disease. He also states: "that at that time many reputable practitioners held that no such disease as that usually called milk sickness, did actually exist; in a word, that all these symptoms commonly attributed to the use of milk or butter, were really of miasmatic origin, in fact only a peculiar form of epidemic fever." It will be found however he further remarks: "that in those districts when the disease is common, that there exists such abundance of proof of its direct transmission by these media, (milk or butter) as almost to set doubt at defiance."

In the fall of 1874, the North Western Ohio Medical Society appointed a committee consisting of one from each of the counties within its territories, with Dr. A. Hurd of Findlay Ohio, as its chairman; to investigate and report upon this subject. Dr. Hurd in his final report made to the society in November, 1875, and published in the Cincinnati Clinic nos. 24 and 25. Says this:

"After having sent out about four hundred circulars and conducted an almost endless correspondence in two or three different states, we have, we admit, received many ingeniously constructed articles, full of opinions and suggestions, valuable as they throw light upon the treatment of the disease, but vague and most of them in fact, destitute in results of absolute and positive experiment and observation. We have not as yet arrived at any true solution of the cause of milk sickness. And I regret to say, that we shall not be able in this report to throw any new light upon the subject."

I will not unnecessarily multiply farther quotations from the literature of this subject—these I think are sufficient to show the great diversity of opinions among those who have written upon it. In the farther discussion of the etiolgy of milk sickness, I propose to consider a few of the facts which are admitted, in the clinical history of this disease, as will be seen from most of the above quotations, and which in my own judgement are abundantly susceptible of demonstration. These facts may be called generic and fundamental in their nature; we therefore propose to utilize them as a basis for classification.

1st. This disease incubates.

2nd. It is transmissible and reproduces its kind.

3rd. It is a specific disease.

It is a well known fact, conceded by all who are familiar with this disease, that the agent by which it is eventually produced does not give rise to any perceptible change in the system, immediately upon its entrance, but that intervals of days, weeks, and sometimes months elapse before the system succumbs to its influence. It therefore incubates.

It is conceded, that if not always, at least very generally the disease is caused in mankind by the use of milk most frequently, occasionally by the use of butter or fresh meats containing the germs of this disease; that it has thus the power of self-multiplication and of transmission indefinitely, as has been often observed. Thus, a calf gets it from the cow, in the milk,—the calf dies and the pigs which eats the carcass, get the disease and die, the dog which eats the pig, and the buzzard which eats the dog, all in due time contract the same disease. It has thus by scores of careful observations been shown that it not only incubates, but that it is transmitted, multiplied, and that it reproduces its kind and nothing else; as certainly as vaccine virus, the poison of hydrophobia, or the malignant pustule. 3rd. It is a specific disease.

It emphatically possesses that incomprehensible quality which always gives rise to the same peculiarities in the nature and evolutions of this disease. It is unique. Its objective and subjective symptoms are as characteristic as any other specific disease.

Now if these three facts are proven, or conceded, the milk sickness must find a place in that general classification, known by the name of infectious diseases; Indeed these are the very criteria by which infectious diseases are recognized, and upon which the classification is mainly based.

Infectious diseases are governed by certain pathological laws characteristic of them all, yet each having certain definite laws peculiar to itself.

It is one of the distinguishing characteristics of infectious diseases that they possess the capacity for propagation. It is also a very generally accepted belief at this time, that they do not originate spontaneously; but that each is the result of an agent or contagium derived from some pre-existing disease of the same character. They do not manifest themselves immediately upon entering the system, but incubate; some for well defined periods of five, ten, or twelve days, others are somewhat indefinite as to their period of development, seeming to depend upon certain physical conditions. With regard to disease poisons, no definite quantities are required to produce specific effects, as is the case with other poisons. These germs having found an entrance into a susceptible organism, whether contained in the air we breathe, or the water we drink, or whether incorporated with the food we eat, or by contact, or inoculation after the necessary incubation, always develop the same evolutions, without reference to the quantity of the poison first introduced. Where in all the arcana of nature do we find a poison, outside of this class, capable of producing such results, which for example after gaining an entrance into the system, will incubate for days and weeks or months, before making any perceptible impression upon the system, or evolving disease? Administer in definite quantities any one of the vegetable or mineral poisons, and you obtain an immediate response; arsenic upon the mucus membranes; strychnine upon the cerebro-spinal functions; each individual poison upon its own favorite organ or tissue, but all of them manifest their power promptly and directly. If the system is overwhelmed, or does not succumb to its power it is promptly eliminated, and its effects disappear. Whatever of sickness, physical derangement or even death may be attributable to any of them, they have never been suspected of having the power of self-propagation.

Thus it will be seen how utterly futile it is for individuals to attempt to establish their vegetable, or mineral hypothesis of the etiology of this disease, by positive declarations, even though they be sustained by affidavits of unscientific men. If they fail in these essential characteristics — these crucial tests, they must fall to the ground.

I trust I may be indulged while I pass in brief review some of the modern teachings in regard to the infectious diseases, hoping that by a careful study of the laws and conditions which characterize this class of diseases, we may, by careful comparison and analogy obtain the means of prosecuting our inquiries in regard to milk sickness, to a more satisfactory conclusion.

The etiology of infectious diseases has been studied with increasing interest, by modern pathologists, in the last few years. Many acts have been brought to light, tending to prove that several of the infectious diseases have for their cause, organized disease germs, or microscopic fungi.

These microscopic fungi are found in the blood of many of the infectious diseases, in such minute forms, that a single drop of the blood is said to contain millions of them, and in some instances they have been actually propagated by the inoculation of the blood containing them, into healthy organisms, where they were found to multiply, with a capacity to reproduce themselves indefinitely, under certain known laws. These germs seem to have the power of maintaining a low form of vitality for an indefinite period of time. They may exist in the air, as Dr. Tyndall has so clearly demonstrated; they may exist in the water, upon vegetation, in the earth, and even within living organisms; susceptible of vitalization and development under favorable conditions.

In 1873, Prof. Obermeyer, when examining with the microscope the blood of relapsing fever patients, discovered the constant presence of minute spiral fungi. Prof. H. Lebert, of Switzerland, says: Since Obermeyer's discovery relapsing fever is certainly one of those diseases for which a proto mycetic origin has been most positively established." He farther states:"that since Obermeyer's communication, his own assistants, Weigart and Buchwald, as well as himself, have examined the blood of all relapsing fever patients coming under his care, with the aid of strong immersion lenses, and they have arrived at the conclusion, that these fungi are never absent during the period of invasion and relapse; although they diminish very rapidly after defervescence." He describes them minutely, giving their size and appearance, he says: "their form is spiral, their motion is very lively, rotary, twisting and rapidly progressing, but this soon ceases under the ordinary conditions of microscopic examination." Again he says: "that a parasite so clearly determined as this, abounding in relapsing fever, and never having been found thus far in any other disease, must be closely connected with the development and spread of the disease, is hardly to be doubted."

Exceedingly minute organisms classified under the name of Bacteria, have been discovered, and fully demonstrated and described by Prof. Max Josef Oertel of Munich, in the diptheritic membranes of the fauces and air passage.

Prof. Haenisch, who has recently written an able article upon yellow fever, says: "that it is most probably produced by a living miasm, although it has hitherto eluded microscopic demonstration, but its existence is argued from very many known facts.

Prof. Lebert discussing the etiology of cholera says: "our observations are full of instructions also as regards the natural history of the *proto mycetes*, ever since the labors of Burden Sanderson, we have been too much accustomed to look upon the air, as in a mannner a hindrance to the spread of bacteria. It is true that cholera spreads much more rapidly in the wet than in the dry way, but a great number of facts prove that the germs are also disseminated without any loss of infectious power in the dry way, by the air and by adhesion to the different substances "and this is the case," he farther remarks, "in a still greater measure for the pathogenetic *proto mycetes*, which belong to the directly infectious diseases, such as relapsing fever, typhus fever, measles, scarlet fever, small-pox, etc."

In the year 1855, Pollender discovered in the blood of animals suffering from the disease called anthrax, minute organisms like vibriones; and in 1857 Branell found the same in the blood of animals and men who had died of this disease. In 1863 Daraine found the same rod-like bodies which he called bacteria in the blood of all animals infected with the anthrax poison, and that they existed previous to the manifestation of any morbid symptom. After much experimental investigation he at length announced the theory, "that these bacteria represent the disease poison, and that he had demonstrated the fact, by inoculation with the blood containing these organisms, and farther that the anthrax blood ceases to be poisonous or infectious so soon as these bacteria disappear by decomposition." He estimates that one drop of such diseased blood contains from eight to ten million of these little bodies, and declares that he has been able to reproduce the anthrax disease, by inoculating with the millionth dilution of such a drop.

In the month of June last I had under my care a typical case of milk sickness. I made a careful microscopical examination of the urine every day, and upon the fourth day after the case came under my care, I drew a few drachms of blood, and immediately placed it under the microscope at the bedside, while yet warm and liquid, I found it contained a great number of living, moving, spiral bacteria, being similar in there general appearance to those spiral bacteria described by Prof. Lebert, as abounding in the blood of relapsing fever patients; I also found in the urine of that patient those same spiral bacteria and co-existing with them, the sphero-bacteria in segments of 2 to 6 or 8, I had opportunity to examine the blood of but one patient; the urine of several was obtained and examined, furnished from patients under the care of one of my professional neighbors; all showing the presense of both these described forms of bacteria. I sent specimens of the blood and urine to a professional friend, having a State reputation as a microscopist and pathologist, and had the pleasure of receiving, within a few days, a full endorsement of my observations.

I have made these somewhat lengthy references to and quotations of the opinions of recent pathological investigators, for the purpose of showing the tendency of modern authorities, and to present to you some of the facts, upon which the germ theory is based. I might extend these quotations at great length, Wagner says: "Gangrene of the spleen is produced by bacteria and that the blood containing them will reproduce the disease by inoculation." We thus see that many of the infectious diseases have been traced directly to the presence of bacteria as their cause, as demonstrated by most carefully conducted experiments. It is fully admitted that many of them have not yet been proven to have such an origin, yet the complete analogy between those which are known to have such an origin, and those as yet unknown or unproved, leaves us but little doubt, that future investigations will be able to demonstrate a similar origin for all of them. In regard to this germ theory; there are many eminent pathologists yet in doubt, and a great variety of opinions are held by those who have given the subject their attention, some hold that these bacteria serve only as carriers of the disease, while the greater number, I believe think that these organisms themselves are the direct cause of the disease; that they are really the *contagium virum*, and that their power of producing disease is due to their own organic development.

Prof. Lister suggests, "that these organisms may be constitutents of some peculiar chemical substance, which acts upon the albuminous compounds, after the manner of a ferment.

Upon this hypotheis it is possible to reconcile nearly all the discrepent theories, and hitherto alleged facts, adduced in support of the various theories of the etiology of milk sickness.

It will be remembered that many reputable gentleman, apparently trust-worthy, allege that they have actually seen the disease result from feeding animals, with the *eupatorium ageratoides*, others, that they have produced it at will, by feeding the *rhus toxicodendron*, and still others, entitled to equal confidence in the truth of their assertions and for the accurracy of their observations, declare that they have known the disease produced uniformly after drinking at certain infected springs or wells.

Now the germ theory explains all the discrepancy, and harmonizes these declarations; which upon any other hypothesis are most contradictory and irreconcilable.

The statements of these men, who have been earnest workers in the profession and seekers after truth, are doubtless in a general sense all true.

If this disease is caused either in men or in animals, or both, by spores, bacteria, or any microscopical fungi or disease germ, similar to those which have been recognized as disease germs; they are undoubtedly capable of maintaining life in a latent and undeveloped form, for indefinite periods of time; or existing in the dust or in the water, or upon vegetation, or in the earth, or floating in the atmosphere, or even within the bodies of men or animals, when in due time they may be surrounded by the neccessary conditions, for their growth, development and vitalization, upon their entrance into new soil which is congenial, and fitted for that purpose. I have said that I have seen and demonstrated to others the presence of bacteria in the blood and urine of patients suffering from milk sickness, yet I am not prepared to claim as a demonstrative fact, that milk sickness is produced by this particular bacteria, but my argument is, that the close analogy between this and other infectious diseases, points strongly to this doctrine as the only satisfactory one yet proposed.

I claim that it is impossible to produce any disease having the peculiar characteristics of milk sickness as heretofore enumerated, by any chemical, mineral or vegetable poison, on the contrary the well ascertained facts in its clinical history show that by every rule of classification it must bo admitted as one of the infectious diseases.

PREDISPOSING CAUSES.

The laws which govern the development of this disease, are very similar in many respects to those which govern other infectious diseases.

The germs of malaria and of other fever poisons no doubt find an entrance into many systems that never succumb to their influence. Two persons may visit an infected locality, the room in which a small-pox patient is confined, and be subject to exactly similar exposures, the one will promptly succumb to the power of the disease and the other entirely escape; simply because in the case of fever the germs do not in the one case find a suitable nidus for their vitalization and development; and in the other case they do; or in the case of small-pox notably, and in some other infectious diseases, one attack seems for ever to exhaust the susceptibility of that organism to be further affected by the disease; but this is by no means the case with all infectious diseases.

It is a well known fact in districts where milk sickness prevails, that a herd of cattle grazing in an infected locality, using the same kind of food and the same kind of drink, do not all become sick, and of those that do, a considerable variation in the time of its occurance is not unusual. It is also a fact that in families using of the same cow's milk, but the smaller portion are generally affected, some becoming profoundly under its influence, while others manifest only the slightest symptoms, as manifested by muscular debility, slight nausea, etc. etc., which may and often does pass away without farther development. My observations lead me to the belief that children are much less liable to this disease than adults.

Of all the predisposing causes, active exercise to fatigue stands the foremost. The physical conditions following fatigue, or any kind of exhaustion, are those which furnish the most suitable nidus for the development of the disease. This has long been observed in the case of domestic animals; and is abundantly proved with regard to the human species. If one member of a family is taken down — so seriously as to create much mental anxiety, loss of sleep, and fatigue from the care of the sick; this is a frequent developing cause in other members of the family who might otherwise have escaped it. A slight attack of malarial fever is not infrequently a precursor or rather a developing cause. In short any thing which impairs the function of the excretory organs, or deranges the normal balance between the constructive and destructive metamorphosis of tissue, seems to induce the condition of all others the most efficient in its development.

SYMPTOMATOLOGY.

The first symptoms usually manifested are feelings of languor, with muscular weakness, and an unusual sense of fatigue, aversion to food, nausea and vomiting. The patient soon seeks a recumbent posture and the disease is rapidly developed. On examination the following objective symptoms are noticed: the pulse not much disturbed, occasionally increased to eighty or ninety, but generally slower than normal and soft, the heart and large arteries, apparently moved by an impulse greater than normal, as if to overcome the loss of tone in the arterioles and cappillary vessels, which are somewhat engorged, as indicated by the flushed, or rather bronzed and dirty appearance of the skin; which is never blanched or cyanotic as in pernicious fever. The surface is not increased in temperature, but rather diminished. The temperature, as indicated by the thermometer, is usually below 100 degrees, sometimes not above normal. The condition of the skin is dry, the respirations are deep and suggestive of one laboring from a sense of fatigue.

The breath is fetid and of a peculiar odor, the stomach and bowels are apparently empty. The abdomen retracted so that the abdominal aorta is usually seen and felt pulsating, so as to attract the attention of the patient and nurse, there is a complete cessation of peristaltic movement and resultant constipation, the tongue is relaxed, large and soft, with a dirty looking, umber colored coat upon it.

All the secretions and excretions are rapidly diminished; only the tongue remains moist from excessive nausea and efforts at emesis. The urine is rarely voided, except at the request of the medical attendent or nurse, and then in diminished quantity, clear and limpid, and generally *below* its normal specific gravity; it rarely deposits a sediment. The countenance has an apathetic expression. The mind occasionally irritable, but generally in a state of hebitude expressive of utter indifference and abandon, delirium is a rare symptom. The appearance is usually somnolent, but they rarely have a profound sleep.

This remarkable condition usually increases from day to day. The muscular weakness daily increasing; until the patient cannot command the energy of will or power of muscle to raise his head or hand, or even protrude his tongue upon your most urgent bidding.

The vomiting persists, ejecting everything that is swallowed. The prostration increases, soon the eyes remain open, the cornea and conjunctiva becomes dry, the process of winking being no longer performed. The patient is generally intolerant of any covering, especially upon his extremities, he is oblivious to all sense of indelicacy, the decubitus is peculiar, indicating a preference for that position that brings the greatest surface of the body upon the bed for support, the head in the most dependent position, preferably hanging over the edge of the bed. Thus from day to day he suffers and gradually becomes more oblivious to all surroundings. From a state of stupor he gradually passes to a state of coma more or less profound. The vital functions of respiration and circulation becoming gradually weaker. Stasis in the capillary circulation ensues, generally first in the brain, the viscera, and then in the extremities—and thus the weakened heart, unable longer to keep in motion the increasing volume of nearly stagnant blood, gradually ceases its movements. In the same manner a failure of all the vital forces ensue, and death steals over the unfortunate victim, without a struggle.

There are some cases which run an exceedingly mild course being characterized only by a few days of debility, loss of appetite, and nausea, with a gradual restoration. Others like the fulminent form of cerebro-spinal meningitis, completely overwhelms the subject, and death by coma ensues within one or two days from its commencement. Ordinarily from ten to twelve days are required from the period of invasion, until the period of convalescence.

Convalescence in this disease, is as peculiar as any other feature in its clinical history, and to this peculiarity I would invite especial attention, inasmuch as these facts are important in the study of its special pathology. Convalescence from milk-sickness is rarely marked by a critical evacuation of any kind. I have no recollection in any case of observing a critical perspiration, mark the initiation of convalescence. A moist skin during the active stage of this disease, in my opinion, never occurs. Diaresis or diarrhœa as a rule, does not occur as a critical discharge—it is true a resumption of these functions do occur, but not in quantities to be regarded as critical. I have occasionally seen diarrhœa occur as a sequel with typhoid symptoms; but I have always regarded it as a result of injuries inflicted, by the injudicious use of drastic purgatives, or as an evidence of uræmic poison, from retained excretæ. Ordinarily convalescence is marked by a cessation of the characteristic symptoms, and a gradual resumption of the impaired and suspended functions, only this and nothing more. There is a popular belief that a patient once suffering from this disease never fully recovers; that, upon exposure to heat and fatigue, he is liable to a relapse, this it is true does occur occasionally but not as a rule; on the contrary, I could point to scores of cases where recovery has been perfect and complete.

DIFFERENTIAL DIAGNOSIS.

Throughout the history of this disease, there has been a disposition manifested on the part of certain interested people, to deny or discredit the existence of milk-sickness as a disease *per se*, and occasionally we find the same disposition manifested by men practicing in our profession whose motives I would not impugn; but when I see a medical man who takes such a position. I conclude that his opportunities for observation have not been favorable. or that he has not very clearly defined ideas of general or special pathology. While a large preponderence of physicians who have had experience in the treatment of this disease, believe it to be a disease *sui-generis*, there are a few who think it but a form of some other well-known disease; some claiming it to be a congestive type of fever, others believe it to be a pustule, and many think it to be one of the forms in which the poison of malaria is manifested.

While there is in this disease many symptoms in common with the prodromic stage of fevers, as the lassitude, debility, thirst, nausea, and vomiting; yet, it will be observed that in all forms of our autumnal fevers, there is an expression of suffering manifested, by the nervous system, entirely different from those of milk-sickness, for example: the headache, backache, and aching of the limbs, are symptoms characteristic of the former and not of the latter; chills followed by febrile and sweating stages, remission and exacerbations belong to the former and not to the latter. In every form of fever, we have a notable increase of temperature. In milk-sickness as a rule the temperature does not exceed 99 degrees. Thus milk-sickness appears to lack every essential element of fever, and it cannot be so classified. There are those who think it possibly a gastritis or gastro enteretis. The absence of tenderness over the epigastrium and abdominal region, the absence of fever, the state of the tongue and pulse, with the character of the discharges ejected from the stomach, renders this theory untenable, it is not a gastritis. It is finally insisted upon by many, that it is but one of the numerous manifestations of the malarial poison. My confidence in malaria as a begetter of evils for the human family, is well nigh unlimited; yet, I cannot admit this disease as the result of malarial poison. It is true we have a great variety of agues, diurnal, tertiary and so on, a whole catalogue of malarial fevers of intestinal, rheumatism and neuralgic affections, of cachexias, etc. etc., so that the question may well be raised; if malaria can produce all this woeful catalogue of affections, why may this one not be added to the list? Then we think there are several inseparable objections to this theory: First: malarial diseases are characterized by periodicity, this is not. Second: malarial diseases are notably antidoted by quinine, this is not. Third: malarial poison is not in any sense claimed to be transmissible, or capable of being communicated from one organism to another. This is the precise mode in which milk-sickness is propagated. Again, it is not always developed in malarious localities. It is frequently met with where ague and malarial diseases are unknown, and finally it is not followed by the common sequellæ of malarial diseases—enlarged spleen and cachexica.

PATHOLOGY.

One of the most striking pathological features of this disease, is the extreme muscular debility, the complete loss of tone and vital force, this not after prolonged sickness, starvation and consumption of tissue by fever; but early in the disease we must therefore regard it as one of the essential characteristics of the disease, one of the very first effects of the active development of the disease poison within the system. This feature commences with the beginning and lasts to the end of the disease. Another prominent feature of this disease is the labored action of the heart, and throbbing of the large arteries, notably of the aorta, conveying the impression that the great central organ of circulation is making an extraordinary effort, to keep the volume of the blood in motion. We find further a rapid impairment of function in all the excretory and secretory organs. When the disease is fully developed there is almost a complete suspension of all the excretions of the body. In short, nearly all the organic functions are seriously impaired. I think this is due to the paralyzing influence of the poison upon the sympathetic nervous system. The functions of digestion and nutrition is almost if not entirely suspended. Absorption from the stomach is very seriously impaired, interfering with all efforts at medication, as I have had frequently demonstrated by the administration of almost toxic doses of belladonna, without any corresponding dilitation of the pupils. The hepatic secretion is suspended, as is demonstrated by the almost invariable absence of bile after the first thorough vomiting. The secretions of the alimentary canal are almost or quite suspended, as shown by the retraction of the abdomen, the constipation, and the dry, empty and contracted state of the bowels, as observed post mortem. The average excretion of urine in an adult, when fully under the influence of the disease, will not usually exceed from eight to twelve ounces per day. The cutaneous transpiration is reduced to a minimum.

Disease poisons not unfrequently manifest a preference for the display of their power upon some special structure or tissue; as typhoid fever and dysentery upon the alimentary canal, or scarlatina and measles upon the dermoid structure. Now this poison seems to spend its force upon the organic nervous system in general, and upon some of the special nerve centres in particular. In addition to the general loss of tone and functioning power just alluded to, we have reason to believe that it makes a profound impression upon the vaso motor nerve centres, in consequence of which the general circulation is usually greatly obstructed, especially within the capillary system ; the cardiac movements are generally below the normal frequency. I have often seen them at sixty, fifty-four, and as low as forty-eight. But the pathological state of the greatest importance is the impairment, after I may say the almost entire suspension of nutrition, embracing alimentation, digestion, absorption, assimilation, and the progressive and retrogressive metamorphosis of tissue. Whether these conditions are induced, by reason of the direct action of the disease poison upon the nerve centres, which directly controls the functioning power of the system, or whether it is to be accounted for indirectly in consequence of the lack of blood supply, and the want of the normal blood pressure, or of both of these agencies combined, I am as yet unable to decide. I incline to the belief that both conditions are factors in the general result. Thus, the vital functions are reduced to the lowest minimum compatible with life, where they often remain from eight to ten days, without consumption of food, or any appreciable consumption even of their own tissues, there not being sufficient combustion to result in a rise of temperature, they pass through the period of the active stage of the disease, in a condition not unlike that of hibernation—consuming barely enough of the tissues to maintain vitality at its lowest possible point. This is proved by the following facts: The scanty excretion of urine is rarely of increased specific gravity, it is not loaded with phosphates or other evidence of tissue waste. The blood does not become degraded, uræmic conditions are rarely manifested by typhoid or other symptoms, and the convalescence is rarely marked as I have said before by critical evacuations. Within the brief space of a few days, often within a period of twenty-four hours, this oppressive burden passes off like an incubus, the nausea and sickness disappears, the appetite often rapidly returns, and the capacity for digestion as rapidly becomes manifest—all the processes of nutrition, secretion, and excretion are resumed, and the organic functions gradually restored. This disease rarely occupies more than ten to twelve days in passing through its evolutions ; one attack affords no immunity from another, rather predisposes to renewed attacks ; the disease frequently recurs as the result of over-exertion soon after convalescence, without any suspicion of it being the result of a fresh exposure, this I am able to verify from repeated observation.

TREATMENT.

Of the numerous methods adapted for the treatment of this disease, there are two which seems to have been generally adopted, and which require notice. I refer to the plans of treatment by cathartics and stimulants.

There appears to be a charm connected with the use of cathartics in this disease, heightened on the one hand and undoubtedly, by the great difficulty of achieving the result, and on the other, where this difficult feat is once accomplished it is generally interpreted as a harbinger of good. In other words, when the patient is *sufficiently alive*, has enough functioning power left to respond to the action of cathartic medicine, it rarely succumbs to the disease; but to predicate an argument, *post hoc, propter hoc*, in my judgment is a mistake; because after the bowels are evacuated the patient eventually recovers, is by no means an argument that the recovery was upon this account.

As an illustration of the determined efforts frequently made to save life by this means. I quote one or two paragraphs from an article published in the Cincinnati LANCET AND OBSERVER, for Nov., 1873, by Dr. A. Fulton, of Bellfontaine, Ohio. Not as illustrative of his practice alone, but as a fair sample of the practice of many others which I have observed. He says: "I have known patients to take and retain from fifty to seventy-five doses of physic, in about twice that number of hours, each dose sufficiently large to purge a man under ordinary circumstances, and during the same time receive a great many large and active enemata and yet not be very freely physiced." Again he says: "I said above that the means must be perseveringly applied; if one dose is rejected another must be given, and that not until seven times only, but until seventy times seven."

Where, I submit is to be found a reason, or a justification for such methods, in a patient whose life if in jeopardy at all, is in danger from asthenia, from a profound impairment of the vital forces? When we consider the extreme difficulty with which this act, meant for the relief of the patient is accomplished would it not be wise to ask ourselves whether such an effort is not likely to be productive of more harm than good? Whisky, or some form of alcoholic stimulants is used as a remedy very generally, and in some cases it seems to be agreeable to the patient, and productive of good results. That it is in any sense an antidote to the poison, as many think, I do not believe but that it acts as a stimulus, and that it is promotive of functioning power I have no doubt, and when used for this purpose is doubtless a valuable remedy, the greatest practical difficulty, according to my observation, is that a large proportion of patients cannot tolerate it. The plain indications of treatment are to care for and sustain, by every proper means, the strength of the patient while he is passing through the disease. I am not in favor of any plan of treatment that will create active perturbations of the system, as they inwardly do mischief, the means which will allay the nausea, and procure quietude and rest are always the most satisfactory. I have had opportunities of seeing patients treated upon a severely expectant method. and to be candid, I am of the belief that of the number that recovered, they did so in quite as short a time, and with less discomfort than those treated by the more heroic methods.

According to my experience sulphate of strychnia accomplishes more good than any other remedy I have tried, upon the theory that it exerts a special influence over certain nerve centres that preside over the motor organs of the system. By its use I have been able in some measure to overcome the atonic condition of the muscles, especially the muscular coats of the stomach and bowels, I also think that by virtue of its action upon the vaso motor nerve centres, it is capable of improving the circulation, and in that manner invigorating the functionary power of the system.

I am in the habit of using from one twenty-fourth to one-sixteenth of a grain of strychnine, every four to six hours as indicated, with the results above stated. As a palliative, I use some agreeable effervescent mixture which is usually well borne, as the citrate of magnesia, or the granulated nitrate of cerium, with a little fruit syrup and fresh water. This serves to allay the thirst and nausea better than any other preparation I have tried. I have used the bitartrate of potassa when it can be retained, with the view of increasing the secretion of urine, and thus saving the patient from danger arrising from retention of effete matter, with very satisfactory results in some cases.

The well-known influence of belladonna upon the vaso motor nerve centres long since suggested its use, I have experimented with it considerably, and occasionally have succeeded in greatly improving the circulation and general condition of my patients; but its extreme uncertainty, arising from the impaired absorbing power of the stomach, rendered its use exceedingly unsatisfactory, and I have therefore abandoned it. If milk-sick patients could be treated by the hypodermic method, remedies for the sustenance of the vital forces, and to improve the functioning power of the system might be much more efficiently and satisfactorily administered. Unfortunately these patients are usually met with upon the remotest borders of our fields of practice, where it is impossible to see them more than once per day; and this method is therefore impracticable.

In conclusion I would respectfully invite the attention of the profession to the following conclusions:

First, that no vegetable or mineral poison is capable of producing a disease having the peculiar characteristics of milk-sickness.

Second, that the ascertained facts in regard to the etiology and clinical history of milk-sickness entitle it to be classified as one of the infectious diseases.

Third, that the disease germ or agent by which it is propagated is a specific poison, known at present only by its effects.

Art. 5.—Chronic Dysentery topically treated.

A Report of a Case read before the Dubois Co. Medical Society, Nov. 17th, 1876.

By T. WERTZ, Jasper, Ind.

Chronic dysentery is one of the most intractable diseases the physician is ever called on to treat. We are all familiar with the usually slow and steady progress of this disease to a fatal issue.

The colon and rectum become the seat of hemorrhagic, painful ulcers, which interfere with alimentation and nutrition, and sooner or later, induces an extreme degree of emaciation and depression. The ulcers may be large, few in number and seated near the caput coli. They may be small, and distributed throughout the whole length of the large intestine. They may be large, ragged, carrying large spots of the mucous membrane, or they may be small, superficial or deep seated, even penetrating through all the coats of the intestines. The hyperæmic condition of the mucous membrane and the changes in the submucous connective tissue are very marked, and the new fibroid growth gives rise to considerable thickening and induration of the intestinal walls. The constant spasms, the engorged and thickened condition of the intestinal walls, interfere with the healing of the ulcers, and there become so many outlets for blood and serum, and little by little the life current of the patient ebbs away. But putting aside the consideration of the pathology, it is plain our whole endeavor must be given to healing the ulcers, and restoring the normal functions of the alimentary tract.

The therapeutical history of this disease teaches us that chronic dysentery is so usually obnoxious to treatment, that any plan, which promises even moderate success, is worthy of trial. By the topical method, the physician has a certain, safe and speedy way of curing most cases of chronic dysentery.

I saw Mrs. R——, for the first time, Feb. 28, 1876, and found her suffering with chronic dysentery of six months standing. She was at that time in a very critical condition, very frail, and reduced in flesh to a mere skeleton. She had a great aversion for food, and usually vomited whatever eaten, a short time after swallowing it. The pulse 120 per minute, weak and very compressible; the skin, shrunken, and bathed in a cold, clamy sweat. There were from fifteen to twenty actions from the bowels, in the twenty-four hours, consisting of mucus, blood and pus. A tormenting tenesmus, with scalding of the urine, made life a perpetual torment, and deprived the patient almost wholly of sleep.

The patient had been treated by a number of physicians, and I was satisfied all had been done by internal medication that offered any hope of a cure. I at once proposed the topical plan of treatment, and the patient being very tired and nervous refused to submit to it. She then had for awhile bismuth and morphine without any benefit. There being a desire for something sour. Hope's mixture was ordered, which seemed to benefit her for a time, but she soon relapsed to her old condition, and as a last resort, consented with much fear and trepidation to submit to local treatment.

March the 21st—assisted by Dr. Crooke, the patient was put under the influence of chloroform, placed in the left lateral position, and the sphincter ani was fully dilated by stretching. The rectum was then thoroughly cleansed by means of a cotton swab and water. (Dr. Themin, of New York, uses a glass tube bent upon itself, and attached to a Davidson's Syringe for the purpose). A duck-bill speculum, previously well oiled, was slipped into the rectum and held by an assistant in the position usual for vaginal inspection, and with a depressor on the anterior wall of the rectum, a good view was obtained for some distance up, a further view being obstructed by the pressure of the gravid uterus, the patient being advanced to the fifth month of pregnancy. The mucous membrane of the lower bowel was inflamed, much thickened, and studded with numerous ulcers, of various sizes, and bleeding when touched. The rectum being well cleaned out, a solution of nitrate of silver, two drachms to the ounce of water, was thoroughly applied to the parts. She soon rallied from the effects of the chloroform, and complained of pain in the part cauterized, which was readily relieved by an opiate, after which, the patient had a sound sleep for ten consecutive hours. This was the first good sound sleep the patient had had for several months.

Sleeplessness, I believe, is always a prominent symptom in chronic dysentery. The frequent evacuations, and spasms of the sphincter muscles and lower bowel, produce a reflex excitability of the nervous system incompatible with repose.

It required about four days for the paralyzed sphincter to regain sufficient tonicity to retain the liquid contents of the bowel. After this the evacuations were reduced in frequency and contained less blood.

Six days from the time of the first application, assisted by Dr. Crooke, the patient was carried to the opperation table, placed under the influence of chloroform, and the nitrate of silver applied as before, except, that it was carried higher up the bowel into the sigmoid flexure. This portion of the bowel is usually the seat of numerous ulcers, and care should be taken to carry the caustic well up into the sigmoid flexure of the colon. After the second application the improvement in the patient's condition was rapid and steady. The actions from the bowels were reduced to four or five per day, and assumed more the characteristics of healthy discharges.

A milk diet was ordered from the first, but from the long use of a slop diet, the patient had become disgusted with it, and on her own responsibility, took a full range of a solid dietary, such as fish, ham, fresh beef, etc., all of which she now began to relish. As the stomach retained and digested the above mentioned food, no restrictions were laid on her choice of it. She rapidly gained in flesh and strength, and in a few weeks was able to leave her bed and walk about the house, a privilege she had not been able to enjoy for a long time. The only additional treatment the patient received during this time, was an opiate and bismuth powder for the first three days, which was discontinued at her request.

July 27, Mrs. R——, was delivered after a short labor. The child, though tolerably well developed, showed many evidences of the feeble nourishment it had sustained during the greater portion of intra-uterine gestation. For two months previous to delivery Mrs. R—— had fully regained her health and passed through her confinement very rapidly.

This case testifies very strongly in favor of the topical method in treating those cases. In view of the extreme emaciation and pregnant condition of this patient, it affords very gratifying evidence of the power of therapeutical agents in aiding the system in casting off disease.

Art. 6.—Convergent Strabismus.

By W. R. AMICK, M. D.,

Clinic at the Cincinnati College of Medicine and Surgery.

Gentlemen: We present to you to-day a case of strabismus. Now the first and most natural question to ask, is, what is strabismus? Strabismus comes from the greek word (*στραβισμος*), which means squinting, or to squint. Now the second question, and of equal importance with the first, is, what is squint? By the term 'squint' we mean an inability to bring both visual lines to bear simultaneously upon a given object, the one always deviating in a certain direction from that point.

There are different kinds of strabismus or squint. If the eye deviates toward the median line, it is called convergent strabismus, or convergent squint, commonly denominated "cross eyes." If it turn outwards, it is called divergent strabismus, if upwards, strabismus sursumvergens, or if downwards, strabismus deorsumvergens. The few remarks that we have to offer will be made upon convergent strabismus, the form represented by the case before you.

When we direct him to look at an object, he does so by fixing with his right eye, the left one turning inwards about two and one half lines. When we cover the right eye the left one turns outwards to fix the object, at the same time the right one deviates inwards, and is now the squinting eye. This squinting of the right eye is called the secondary deviation. As soon as we uncover the right eye, the left turns inwards. We find by this examination that the arcs of mobility are the same in both eyes,. so that we have what is known as concomitant squint. We also see that deviation is in the horizontal plane, so that the internal and external recti muscles are the only ones at fault. Another point that we obtain from the examination is, that the squint is monolateral, *i. e.* confined to one eye—in this case the left one. In alternating squint it is different, for sometimes one eye deviates and then the other. In alternating squint the sight in one eye is as good, as a rule, as that in the other. But in the monolateral form of young persons, it is generally found that the sight in the squinting eye is not so good as in the opposite one. This is the case with our patient. The sight in the right eye is normal, but with the left he can only read number eight of Jager at twelve inches. We also labor under another disadvantage in operating upon this patient, for he does not have diplopia or double vision. When the right eye is covered he can see this pencil with the left eye, but when the right is uncovered, the left eye immediately squints and he sees but one.

This is probably due to the fact, that as the image formed upon the retina of the left eye is less distinct than that upon the right, he has learned to suppress it. There may also be some insensibility of the retina, internal to the macula, corresponding to the part that receives the rays from objects, being simultaneously excited with the central portion of the retina of the other eye.

The majority of cases of convergent strabismus are due to hypermetropia. Hypermetropia depends upon two conditions — either the antero-posterior axis of the globe is too short, or else refractive power of the dioptric media is too low. In an emmetropic or normal eye, rays which impinge parallel (coming from a distance) upon it, are brought to a focus upon the retina, without any effort of the accommodation. In a hypermetropic eye they would be united at a point posterior to the retina, so that the accommodation has to be exerted in order that parallel rays be brought to a focus at the proper place. As the object is brought nearer to the eye, the rays enter more divergent, and as a natural consequence, a greater effort of the accommodation apparatus is required. In order to increase the power of accommodation, one eye often squints inwards, for, with the convergence of the visual lines there is an increase in accommodation. This form of squint is periodic at first, and is only noticed when the patient is looking at small objects near the eye. In our patient it was first noticed when he was about two years old. As he is now fifteen, it is not difficult to tell how long the trouble has existed.

There is a difference between this form of strabismus and that caused by paralysis. The former is due to increased tension in a muscle, while the latter is due to innervation. If a paralysis of the external rectus existed, he would be unable to turn the eye outwards farther than the median line. But, as you see, he can turn the eye at least at forty-five degrees beyond the optic axis. He is not troubled with dizziness, and with the eye closed, can quickly and correctly place his finger on a small object.

The treatment in this case will be tenotomy of the internal rectus. The old operation of dividing the muscle instead of the tendon, has properly fallen into disuse. In this case, we have increased tension or contraction together, in all probability, with hypertrophy of the internal rectus. The fibres of the external rectus are put upon the stretch so that they cannot exert their normal contractile power. We divide the tendon of the internal rectus close to its insertion into the sclerotic, which will give the fibres of the opponent muscle time to contract and regain their normal power. In a few days the divided tendon will become attached to the sclerotic at a point posterior to the original insertion. The distance will depend upon the extent of the operation. We propose to operate by a modification of Von Graefe's operation, so that the tendon will be divided subconjunctivally. Your professor of anatomy, Dr. M. L. Amick will administer the chloroform.

Von Graefe's operation is as follows:—the patient is placed under the influence of an anæsthetic. The lids are seperated and held apart by the spring speculum. An assistant rotates the eye, in this case outwards by seizing, with a pair of notched forceps, a small portion of conjunctival and subconjunctival tissue near the margin of the cornea. The operator, with a small pair of forceps, seizes the conjunctiva over the lower portion of the tendon. A small incision is then made with a pair of scissors. If the capsule of the tendon has not been opened with the first incision, it is then taken up. A small opening is made through it with the point of the scissors. Then the squint hook is passed in at this opening and the tendon is taken up. It is drawn forward and the conjunctiva pushed off, so that it is exposed. Then it is divided close to the sclerotic. Then the processes that pass from it to the capsule of the tendon, if there are any, are next divided. The modification that we propose to operate by, is the one that Mr. Wells adopted. It consists in making the opening in the conjunctiva a little lower down, so that the tendon is divided subconjunctivally.

Now we have divided the tendon and you can see the difference in the position of the eye. While he is still under the influence of the chloroform, it appears to be turned outwards, presenting a small amount of divergence. But as soon as the influence of the anæsthetic has passed off, you will find that the divergence will have disappeared also.

The infiltration of blood that you see here, will disappear in the course of a fortnight. It was caused by dividing some of the blood-vessels in the conjunctiva. The dressings for the next twenty-four hours will be cold water applied with a cloth. After that time, no applications will be made.

Art. 7.—Diseases of the Rectum. A brief Review of their Symptomatology and Physical Diagnosis.

BY REUBEN A. VANCE, M. D., Gallipolis, Ohio.

President of the Ohio Valley Medical Association; Member of the Medical Society of the County of New York, etc, etc.

No I.

If we judge diseases by the pain, discomfort and interference with the duties of life which they cause, diseases of the terminal orifice of the large intestine and of the rectum will occupy no secondary station. The most common of all diseases, their sympathetic complications are not less important than the derangements of structure, function and sensibility which they produce in the rectal, anal and contiguous textures. One of the inevitable results of civilization, diseases of the rectum and anus are very common at all ages and in both sexes, yet they seem to afflict with greatest intensity those classes of the community whose lives are most sedentary, and whose habits are least calculated to counteract the baneful influence of their occupations and pursuits. Yet common as these diseases are, and much as are almost all classes of civilized communities predisposed to their development, still there are none which yield more readily to proper, and in the majority of instances to simple treatment when resorted to early in the course of the affection. Nevertheless Mr. Lizars, in his "System of Surgery" takes occasion to say: "diseases of the rectum are very common, very numerous and important; still, however, they are but little understood;" and Dr. Bodenhamer, in his "Physical Exploration of the Rectum," published in 1870, states that such was the abject ignorance on some of these subjects, that an able writer in the "London Medico-Chirurgical Review," not many years since, wrote as follows: "Beyond the treatment of Fistula in Ano and Hæmorrhoids, the surgery of the rectum is a sort of land of the Cimmerians, where quacks alone can breathe, and where humbug darkens the air."

However true the observation of the reviewer may have been at the time he gave it utterance, the day of its truthfulness has long since passed by. The same method of physical exploration which threw open the wide field to be observed with the ophthalmoscope, yielded fruits scarcely less brilliant, if less dwelt upon, in other departments of practical medicine. Diseases of the posterior nares, the larynx, the trachea, the œsophagus and the ears, all profited by it. But it was not so much the fact that new and more exact methods of physical diagnosis were at the command of the surgeon, that in late years has led to the rapid development of, and great advance in the surgery of the rectum and anus, as it was the consciousness of the profession that for puerile and discreditable reasons this wide, fruitful and important field had been most shamefully neglected. Forgetting the fact that it is at once the privilege and the duty of the medical man to afford relief to suffering humanity, it matters not who it is that suffers, or from what the suffering proceeds, there was a time when a patient suffering from disease in these parts, would have sought assistance in vain, in the higher ranks of educated physicians. In all probability the charlatan was the only one to manifest interest in his afflictions—to offer him relief from his sufferings—and not infrequently both were aggravated by the blundering ignorance of his adviser. We inherit as a legacy from those times that caution which would prevent the surgeon curing an ulcer of the rectum lest the patient suffer because the discharge was checked; which would bid the sufferer from fistula to continue in torment lest his lungs become implicated when the sinus was closed; and which would advise inaction and a patient contentment with present evils in the case of one whose life was rendered disagreeable and almost useless by bleeding hæmorrhoids, for fear, as they express it "the system having become habituated to the discharge it would be perilous to check it."

Urgent as are the symptoms and distressing as are the disorders which implicate the rectum and its terminal orifice, it is to be questioned if the sympathetic derangements which follow in their wake, and to which they give origin are not more painful and important. Literally, no organ of the body is beyond the range of their influence—none, which at times does not sympathize in their derangements. The spinal cord and brain are very commonly implicated—through the reflex function of the former, most of the results just alluded to are consumated. It is through the nerve centers of the spinal cord that the bladder, the uterus and ovaries in the female, the spermatic vesicles, prostate gland, urethra and testes in the male, are affected. To reflex influence through the supreme nerve centers are to be ascribed those curious mental symptoms which give affections of the anus and rectum their importance as causative agents in the production of intellectual aberration. In many cases the starting point of the chain of pathological links which connect disorders of the reproductive organs with mental derangement is to be found in a primary, often neglected disease of the rectum and anus, to which the symptoms of disorder of the testes—the so-called "spermatorrhœa"—are secondary phenomena. Quite as commonly is it the fact that the primary complaint is located in the rectum in many of the most inveterate cases of dysmenorrhœa. Were we to abstract from the classes of vesical, urethral, uterine, ovarian and testicular diseases, those due in reality to disease located in the rectum and anus, and to which the former are secondary, it is probable that more than half the whole of those very numerous disorders would have to be charged to the account of the latter. It is certain that the incurability of some would find an explanation in the fact that heretofore they have not been ascribed to the proper cause.

A more than passing glance at the broad expanse of sympathetic affections which follow in the wake of diseases of these organs cannot be had at present. Did time permit, and were this the occasion, much could be said of the functions of the rectum—the indifference to its welfare—which is the origin of so very many of these complaints. Not only does ignorance and neglect cause many of these diseases, but a mistaken sense of modesty and an adherence to popular prejudices, prevents many a sufferer from profiting by the relief at the command of the surgeon. It not unfrequently happens that a patient whose pains and aches spring from disease of the rectum is sufficiently quick to bring forward the sympathetic affection from which he suffers, but unless asked, will not allude to the rectal derangement. Sometimes the excuse is, that they are aware how very common diseases of those organs are, and that they are loath to magnify a trifling ill into a complaint of the first importance. Under these circumstances, a patient will submit to almost anything calculated to relieve the vesical spasm from which he suffers, but will listen incredulously when told that his bladder symptoms are secondary to disease of the rectum, and will get no better until the lesion of the latter is cured. Especially does this scepticism exist among patients in whom the nervous system has become exhausted and unstrung from long continued suffering—in whom mental and physical energy are things of the past, with whom life is but a weary existence—a class of patients with which the writer has had much to do.

It was my fortune to meet with many members of the class just alluded to, early in my professional life. Some, I could not induce to dismiss the idea of incurable nervous disease, which had taken possession of their minds—with others, I was more fortunate. To the favorable results which followed local treatment in the latter cases, I am indebted for the unusual advantages I enjoyed of observing in a few years, a very large number of cases representing almost every variety of disease which attacks the rectum and contiguous structures. Some of my first patients were intelligent gentlemen who had been treated by prominent members of the profession in this country, and abroad. One man had spent five years in an earnest endeavor to be rid of an ulcer on the posterior surface of the rectum, just above the internal sphincter; he was a person of considerable natural wit, and had made a study of the character and procedures of the various medical gentlemen he had consulted, and under whose care he had been in New York, London, Paris and Edinburgh. His record of the opinions he had received, and the procedures that had been advised was in the highest degree interesting. To say the least, it demonstrated great uniformity of judgment as to the remedial agents to be employed—unfortunately, the one course always resulted negatively, it mattered not who advised it. In others, the secondary changes in the prostate and about the neck of the bladder had engendered that distressing state in which morbid fears of serious derangement of the sexual function are entertained. It has more than once befallen me to see this unnatural mental state gradually subside and ultimately disappear, with the diminution and final removal of a source of rectal irritation. Having had occasion recently to review the notes of my cases, the idea occurred to me that had I had some one to suggest to me ten years ago, that which my experience during that time has convinced me is reliable and valuable, some of my unsuccessful cases would have been differently treated, and that course of procedure which I was ultimately led to adopt, and which resulted satisfactorily, would not have been preceded by months and months of disappointing expedients. Believing that there may be those in the ranks of the profession to whom my experience will be of value, I have determined to embody it in a few short articles relating mainly to my own expedients, trusting that my contributions to this department of practical medicine will be taken in the spirit in which they are offered—with an earnest desire that they may be interesting and serviceable to those who have such cases to treat.

The fact so well expressed by Mr. Ashton—that few classes of disease exemplify the necessity of a wide and mature consideration more than those implicating the rectum either primarily or secondarily, for the same symptoms will often be found existing under the opposite conditions of cause and effect—is one that should ever be borne in mind when inquiring into the details of a case. The facts narrated in the patient's history must be held subject to such modification as the more exact information elicited by physical examination may require. Yet the importance of a correct history must not be under-estimated. The bearing upon diagnosis of circumstances relating to the manner in which the disease first manifested itself, the symptom first apparent, and the order of those developed subsequently are all very important in determining the essential facts connected with the affection, although an ocular inspection of the part may be necessary for the recognition of the latter. The history of disorders to be treated of directly, and the questions relative to their differential diagnosis, will illustrate the value of the facts to which allusion has been made much more forcibly than anything that can be said at present.

Symptoms of Disease of the Rectum.—Disease of the terminal orifice of the large intestine and of the rectum is characterized by pain, discharge, deranged functional activity on the part of the bowels, and in certain cases by protrusion beyond the sphincters of prolapsed tissues, either healthy in structure and only more or less modified by position, or morbid growths, the result of prior disease, to which the prolapse is a secondary phenomenon. The symptoms can be readily and conveniently elicited from a patient by a few inquiries bearing upon each of these four heads. While leading questions are always to be avoided, care should be exercised to see that no point is passed over without thorough investigation. Proceeding in order, and directing attention first of all to pain we will find that the symptoms can be arranged as follows:

Pain.—Pain to a greater or less extent exists in almost every case—in some cases in which the cutaneous structures about the anus are more implicated than the mucous, connective or muscular tissues of the rectum, an almost unbearable pruritus overshadows all other sensations. The absence of pain, however, during the early stages of any affection implicating these parts—especially if there is freedom from distressing itching at the same time while purulent discharge and functional derangement are present—should lead to a very thorough inquiry into the condition of the structures within and above the sphincters. When this symptom is complained of, its character as to persistence, remission or intermission should be noted, and its relation to the functional activity of the bowels established. It is important to know whether it precedes, follows, or is developed by movement of the bowels, how long it continues and if in either event there is a period during which the patient is entirely free from suffering.

Discharge.—The quantity and character of the discharge, its date of development and place in the succession of symptoms complained of, should be carefully ascertained. It will sometimes happen that the clinical history of a case is characterized by the occurrence of a serous discharge, soon assuming a purulent form, which is not infrequently tinged with blood. Again, sanguineous discharges occasionally initiate a disease during the subsequent course of which the flow becomes purulent and finally may assume a serous character. The variation the discharge undergoes at the time the patient comes under treatment—the influence from day to day of sleep and wakefulness, of rest and activity—is very interesting and instructive. Patients often ask relief from what they call "morning diarrhœa," and there is great uniformity in the complaints detailed by this class of sufferers. They are tormented by urgent calls to the water-closet immediately upon arising, and frequently as many as a half dozen visits must be made before relief is experienced. In some cases three or four calls to stool while dressing; great pain is experienced; the motions are small but not of a healthy fecal character—quite often it is only blood and pus that is passed. Again, the substance voided looks like the white of egg. These patients quite commonly experience a number of hours of comparative ease and freedom from pain, discharge and tenesmus, when once the accumulations of the night have been passed. Other forms of rectal disease seem to require the stimulus of bodily exercise before the serous transudations, so commonly their accompaniment, become troublesome. With such the discharge is most profuse during the hours in which the patients are most actively engaged—generally during the latter part of the day.

Derangement of the Bowels.—The connection is very close between the symptoms under the last head and some of those pertaining to derangement of the bowels. Thus, it frequently happens that the diarrhœa characteristic of some forms of rectal disease belongs fully as much to the foregoing subdivision of symptoms, as to this one, and that the sanguineous and purulent discharges are more indicative of the nature of the disease than is any inference to be drawn from the nature of the functional irregularity of the intestines. Diarrhœa even of the simplest character becomes of grave import when observed in connection with attacks of constipation, and is an exceedingly significant symptom when developed in patients known to have suffered from inflammation of the rectum, ulcer, abscess, hæmorrhoids in which secondary inflammation of the submucous connective tissue has resulted in the formation of pus, or even of inflammatory thickening, or fistula in ano. When incontinence of wind or feces is suffered from at the same time, and the serous discharge characteristic of the previous attacks of diarrhœa is succeeded by a continuous dribbling of pus and blood, the indications are very strong of a dangerous lesion of the rectum—one that the patient can no longer neglect without peril. In other cases the pain developed by defecation has more to do with the derangement of the bowels than the disease of the rectum. This is especially true of irritable ulcers of the rectum, formerly known as *anal fissures*. In this disease the pain caused by defecation is so severe that notwithstanding the fact that by delaying the act they only postpone and render more severe the inevitable agony, yet patients will put off to the last minute the evacuation of their bowels, and almost starve themselves in their anxiety to eat only sufficient food to sustain life, in order that the bulk of their passages may be reduced to the least possible degree. Whenever any lesion in the vicinity of the rectum so impinges upon its cavity as to diminish its caliber, much the same symptoms, so far as the functional activity, of the bowels is concerned, will be developed as when inflammatory or other pathological exudates interferes with its functional dilatation—in both cases the evidences of stricture of the rectum will become apparent. In other cases, reflex contraction of the sphincter will be attended with similar clinical characters—cases in which the primary irritation is as commonly to be found in hyperæsthesia of the prostatic urethra, as in the mucous lining of the lower part of the rectum. The follicles in the folds of the mucous membrane just within the grasp of the sphincter, when diseased, operate upon the muscular structures of the lower part of the intestine in the same way, and when ulcerated, are the cause of a peculiar form of uncontrollable, expulsive diarrhœa, in which the discharges are principally pus, mingled with a thick viscid mucus. The effect upon the bowels of an advanced stricture, whether of inflammatory or cancerous origin, is hardly worth dwelling upon at present—the remedies at the command of the surgeon will be enumerated when treating of stricture of the rectum, and any further reference to the symptoms of that complaint can be dispensed with for the present.

Protrusions at the Anus.—If the symptoms under the last subdivision were closely connected with those that preceded it, those which belong in the present class are similarly related to the signs which are revealed by physical exploration. While the history of the case will furnish the surgeon with the data necessary to discriminate between the different diseases attended by protrusion, yet he will be dependent on physical examination for all the facts relative to the condition of the parts in a given case. The mucous membrane of the rectum not unfrequently protrudes—the muscular coat sometimes accompanies it. Beside cases of prolapsus recti, hæmorrhoidal tumors protrude at the anus. The size and appearance of the tumor in such cases depends on the length of time the disease has been in existence, and the care taken to return the parts when protruded. It will rarely happen that a polypus becomes troublesome from its disposition to pass beyond the sphincter, but such cases are seen occasionally. When any part of the rectal tissues have been protruded for a length of time, they undergo change, the investing membrane loses the character of mucous tissue, and in a measure, assumes the appearance and characteristics of the surrounding skin. If the sphincters have not lost their power, the protruded parts will suffer from compression. But as the muscular tissue in the lower part of the large intestine, when continuously distended by hæmorrhoidal tumors, relaxes and becomes atonied, it will be found that the evils which result from compression of the sphincter are rarely important except in comparatively recent cases. In the majority of cases, the history which the patient details will enable the practitioner to determine with a very great degree of certainty the nature of the protrusion—whether prolapse of the coats of the rectum, hæmorrhoidal tumors or polypoid growths--but as a physical exploration is necessary to determine the nature of the treatment indicated, and as one glance at the part will at once settle questions which it is very difficult to express in words, but which it is highly important should be answered in every instance, any further consideration of the nature of these protrusions can be deferred until their tactile and visual characters come up for discussion under the head of the methods of physical exploration—a subject at once to be entered upon.

Physical Exploration of the Rectum.—It is desirable that the foregoing review of the symptoms which attend diseases of the rectum should be supplemented by a short account of the methods of physical investigation to which the surgeon can resort. The eye and finger of the latter appreciates the change which disease induces in these tissues, and the best methods of physical exploration are those which, with the least pain and inconvenience to the patient, give the examiner the most thorough visual and tactile acquaintance with the pathological state of the parts. In the immense majority of cases, the surgeon needs no other means of exploration than that supplied by his own educated sense of touch—digital examination furnishing him with all the data necessary for an accurate diagnosis of the state of the rectum and its surrounding structures. When it is desirable to add to the evidence furnished by the sense of touch, that which visual inspection supplies, one of the numerous forms of anal specula may be employed. The probe and the exploring needle are invaluable in certain cases—the former for investigating and it may be discovering sinuses, and the latter for determining the nature and contents of doubtful enlargements. In some cases hæmorrhoids are complicated with abscess—the abscess terminating in fistula. When the connective tissue about the lower third of the rectum has been the seat of inflammatory changes resulting in suppuration, the discharge of the pus, and the establishment of a fistula may not be followed by the subsidence of the thickening which has encroached upon the calibre of the rectum, and prevents its ready dilatation during defecation. One can readily see how essential it is in such a case to follow the symptoms with accuracy, but above all, to study in detail every phase presented upon the most careful and pains taking physical examination. In cases of this nature—or in cases of any kind in which the diagnosis is at all difficult, or the symptoms obscure—anæsthetics should be administered, and after forcibly dilating the sphincters, Sims' speculum should be employed. By so doing the rectum can be readily and thoroughly investigated, and the condition of all its parts determined with an accuracy that can rarely be attained with any other organ. The importance of digital and ocular exploration is so great that it may be profitable to review with more detail, the methods just alluded to, and also to describe the maneuver for forcibly dilating the anal sphincters—the value of which as a diagnostic measure is quite trivial, compared with its importance as a preliminary step in cases where operations have to be performed upon the rectum.

Digital examination deservedly ranks among the most highly prized of the means of physical exploration to which the practitioner can resort. The fact that it is a measure the application of which requires no instrumental aid, and the maneuver, is one always available, are circumstances which not only add to its value, but are inducements to the surgeon to make use of it in every case. The sense of touch occasionally reveals important indications in cases where deep-seated abscesses about the rectum are to be suspected; in others, digital examination of the parts about the anus furnish unmistakable evidences of the existence of fistula. Combined with ocular inspection, digital examination suffices for the recognition of all forms of disease in the rectum and adjacent parts which are susceptible of diagnosis. If the former is limited to such view of the parts as can be obtained without the aid of the speculum, the combination of the two methods will still prove sufficient for the recognition of all but an extremely small minority of cases. Thus, in the immense majority of cases of fistula in ano, they are all that the surgeon requires in order to determine the situation and relations of both the internal and external orifices. The sense of touch will mark out the fistulous track and determine the internal opening with just as much accuracy as the eye of the observer will locate the external orifice. In like manner, the site of a fissure, and its prolongation up the rectum can be recognized by the touch of a trained finger. The secondary contraction of the sphincters sometimes renders even a digital examination a matter of difficulty in the latter class of cases and makes a specular examination a painful and arduous task. Under such circumstances, the finger of the surgeon can detect the fissure by the crevice-like feel it yields, without it being necessary to pass the pulp beyond the tightly drawn ring of the firmly contracted muscles. The position of the fissure having been determined, it will be in the power of the surgeon to ascertain its length, depth and general character, by pinching up, pulling down, and as much as possible, everting the mucous membrane in which the slit is situated, and subjecting the same to visual inspection. In cases where the boggy feel of the parts over one ischio-rectal fossa inclines the surgeon to diagnosticate the existence of an abscess, nothing will cast so much light upon the real state of affairs as a digital exploration of the rectum, which by the recognition of fluctuation, may at once settle the character of the case. To call the peculiar sensation appreciated by the finger in these cases "fluctuation" is a misuse of terms—the sensation is *sui generis* and must be felt to be known, but once felt, it is never forgotten. The same is true to a certain extent, of the characters of the various ulcers which the finger can be taught to recognize in the rectum. A knowledge of the forms assumed by different lesions of an ulcerative nature in the various zones of the rectum within the reach of the finger aids materially in diagnosis. A great deal of truth can be roughly expressed in regard to rectal pathology by stating that, as ulcers invade the mucous membrane of the lower part of the large intestine, they lose their vertical form and slit-like character, and assume an oval shape and rounded outline the further they are removed from its terminal orifice, and the deeper they are situated in the cavity of the pelvis. Thus, the fissure-like form of the ulcer of the rectum is characterized by spasmodic contraction of the sphincters and a peculiar gnawing intolerable pain—the disease commonly called "Fissure of the Anus"—illustrates the shape of ulcers near the orifice of the rectum; a form approximating an oval shape distinguishes ulcers between the external and internal sphincters; while the rounded outline and perpendicular walls of ulcers above the internal sphincter, renders lesions of this character in the latter situation much the same as those of a similar nature in other parts of the body. As a general rule, the excavations in the walls of the rectum caused by these ulcers can be readily recognized. The encroachments upon the calibre of the intestinal canal—whether due to simple inflammatory thickening or the result of the infiltration of adjacent structures with carcinomatous material—when, as is usually the case, they are situated sufficiently near the outlet of the intestine to be within the reach of the finger, present problems which the diagnostic skill of the practitioner must solve. So long as the tube remains freely pervious, the symptoms of stricture may be slight, and considerable experience in the surgical diseases of the rectum and anus is requisite to enable the physician to determine the existence of that disease, even when the symptoms become fully developed. A digital examination reveals more or less thickening about the rectum, with a diminution in the calibre of the tube. The character and position of the thickening differs in different cases, and the extent to which the intestinal canal is encroached upon, varies widely. The existence of ulceration and its effect upon the diameter of the intestine, when developed in the strictured portion, aıe very important circumstances. A digital examination is often the only method of learning the caliber of the rectum, the extent to which the surrounding connective tissue has been thickened, the presence or absence of pus in the meshes of the latter, or the development of extensive ulcerative changes on the mucous surface of the former. In many cases, the educated finger will distinguish the hæmorrhoidal tumor, the mucous investment of which is a highly granular, deeply congested membrane, resting upon a thickened stroma of connective tissue in which the arterioles are very numerous and widely dilated, from that hæmorrhoidal enlargement in which the investing membrane if anything, is even less vascular than the surrounding mucous membrane, while the sub-mucous cellular tissue is hypertrophied, infiltrated and thickened, the venous trunks dilated and varicose and matted together with an exceedingly dense mass of fibrous tissue. As a general rule the former is felt by the finger inserted in the rectum as a thickening in the wall of the intestine, while the latter conveys the impression of an independent body imbedded in the soft structures by the side of the canal, yet in many instances, the tactile phenomena so far as size, form and position of the hæmorrhoidal masses are concerned, are exactly alike, and the diagnosis rests upon the appreciation, by the practitioner, of those obscure sensations connected with the consistence and resistence of the morbid growth—phenomena, a knowledge of which can only be acquired by experience. Occasionally both forms of hæmorrhoidal tumor may coexist with a hypertrophied mass of connective tissue which, from the traction made upon it during the performance of the physiological offices of the parts, has been gradually separated from the surrounding structures, and, as it, together with the mucous membrane investing it, and the bloodvessels supplying it, has become more and more isolated, the vascularity of its periphery has become less and less. The original mass is connected with the wall of the rectum by a neck, and the whole structure has assumed a club-like shape. These polypoid growths are by no means uncommon, and the surgeon is occasionally called upon to diagnosticate between them and deep hæmorrhoidal masses. Even in cases where, from laxity of the sphincter, the morbid growths upon the lining membrane of the terminal portion of the large intestine seem to be habitually protruded, the careful practitioner will not consider a case treated with due care, until an injection has been administered, the bowels evacuated, and a digital examination instituted at this time, when it is possible to determine with great accuracy, the presence or absence of polypus, stricture, hæmorrhoids, fissure, fistulæ or ulcer.

It not infreqnently happens that careful digital examination results in convincing the surgeon that *an ocular inspection* of the deeper parts is necessary. If disease is located near the anus, and occupies but a small area, recourse can be had to one of the ordinary anal specula, one of the best, if not the very best of which is known as Ferguson's speculum—an instrument which readily admits the finger and can be introduced with but little annoyance to the patient. An opening extends from base to apex along the side of this speculum, and when in the rectum, the instrument can be slowly revolved, thus bringing each section of the walls of the intestine opposite the opening, and subjecting, them in turn to the eye of the surgeon. In this way a view can be had of the lining membrane of the rectum near its outlet. The aid thus furnished, however, does not always suffice even for diagnostic purposes, and when an operation is demanded the deficiencies of this method become strikingly apparent. In such cases the plan introduced by Dr. Marion Sims and which is known by his name, can be resorted to. The sphincter ani muscles are powerful, and their guard over the outlet of the intestine is jealously maintained. In order to secure the full benefit of this method, these muscles must either be paralyzed by forcible distention, or their functional activity must be overcome by profound anæsthesia. The latter generally suffices for all diagnostic purposes. The position in which the patient is placed is also an important circumstance in facilitating a view of the lower bowel. The table on which the patient reclines should be of proper height, the direct rays of the sun, or reflected light from some source of artificial illumination, should fall obliquely on the patient, when the latter, under the full influence of the anæsthetic, is placed in position for examination. The patient should be placed in the prone position with elevated hips and outspread arms, so that the intestines shall gravitate towards the diaphragm; the speculum then being inserted the surgeon will find that as the air, under the influence of atmospheric pressure, enters the rectum and distends the cavity, an excellent view of the whole internal surface of the rectum as high up as near its termination in the sigmoid flexure of the colon may be obtained. After he has made a few explorations, the surgeon will endorse Van Buren's suggestion, that the chair employed for uterine examinations where the pelvis can be elevated or depressed at will, is admirably adapted for this purpose; for by proper management of the light, its rays may be thrown to the bottom of the cavity presented by the bowel, and the pressure of air pumped in and out by the diaphragm keeps the walls of the gut distended and in full view.

Anæsthesia, position and Sims' speculum are of the first importance in the diagnosis of diseases of the rectum and anus. The very rare cases in which these measures fail to afford a satisfactory view of the internal aspect of the lower bowel, occur in patients in whom the opening into the rectum has either become so contracted from organic disease as not to permit the necessary amount of dilatation, or the disorder is of the nature to produce so violent a spasm of the anal sphincters, as to prevent introduction of the speculum. In the latter class, spasm of the sphincters occasionally persists while the patient is under the influence of ether—profound anæsthesia being necessary in order for the surgeon to make a digital examination. In the former, the existence of organic disease with contraction of the canal at the outlet of the intestine, makes the question of ocular examination of the internal surface of the rectum one of such grave operative procedure, that explorations as an aid to diagnosis are not resorted to until they have become necessary for the relief of the patient. The number of patients in whom it is necessary to overcome the resistance offered by the sphincter muscles is—as has just been said—not large. Yet there is a class of patients who are always in haste when they consult their medical adviser, and consequently, the surgeon is not infrequenly called upon to perform whatever operation may be necessary, as well as to determine the character of the case the first day he sees the patient. It would be well for the practitioner in all such cases *to suspend the muscular activity of the sphincters by forcible dilatation* and before determining upon any operative procedure, to give the rectum a most thorough inspection. Anæsthesia is of course necessary. When this course has been pursued it will occasionally happen that a number of polypoid growths will be found in a case that seemed to be one of simple fissure of the anus; extensive syphilitic ulcerations will be revealed, where before there was seemingly nothing more than an eroded and irritable internal hæmorrhoid, with such violent spasm of the sphincters as to render digital exploration painful and unsatisfactory; while the more satisfactory view that can then be had of the internal surface of the rectum, and the number of unsuspected pathological processes revealed by it, will be such as to make the surgeon anxious to avail himself of the greater command over the site of disease, which it confers upon him in every case in which he is compelled to operate on parts situated within the grasp of the sphincters. The ease with which the muscular fibres can be placed at rest by this maneuver of forcible dilatation is another recommendation in its favor. Although very numerous mechanical appliances are made for the surgeon's use when this operation is to be performed—instruments, all of which are formed after the design of those anal specula, the blades of which are designed to separate by means of screw-power—still my preferences are decidedly in favor of the plan I was taught many years since by Van Buren. This consists in introducing both thumbs well beyond the external sphincter back to back; then taking a purchase from the buttocks with the outspread fingers, carry the thumbs forcibly apart until their palmar surfaces are arrested by the ischial tuberosities. The atony of the sphincter muscles thus induced not only affords the surgeon free and ready access to the internal parts, but, when the mucous membrane has been irritated by either operative measures or the maneuvers essential for diagnosis, the great pain which is otherwise liable to occur from the spasmodic contraction of the intact muscle is saved the patient.

The foregoing brief outline of the symptomatology and physical diagnosis of rectal and anal diseases will be supplemented by more complete details of the signs and symptoms of the different affections which will be the subject of succeeding articles. It may not be amiss to state also, that the standpoint of therapeutics taken is one that inclines more to medicine, than to surgery—that is to say, in questions of treatment the resources of rational medication will be more dwelt upon than those of operative surgery, it matters not how much the procedures of the latter may transcend those of the former in brilliancy and expedition.

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Art. 8.—Functions of the Spleen.

BY S. C. WEDDINGTON, M. D., JONESBORO, IND.

Physiologists tell us that all vertebrate animals have spleens, but why all should have, or why even any should have such an organ seems to be a mystery. The existence and some of the characteristics of the spleen have been known from time immemorial; and the name has descended to us unchanged from the Greeks. But, though its existence has long been known, and its structure has been minutely examined and described by Malpighi, Köllicker, Sanders, Wharton Jones, Remak, Leydig, Huxley, Gray and others; and, although much has been learned in relation to the functions of other viscera, we are yet materially in the dark in regard to the functions and office of the spleen. In fact we seem almost to have concluded that it is superfluous if not useless.

Prof. Dalton would seem to think, judging from the late edition of his work, either, that he knows but little about it, or that there is but little about it worth knowing.

It is unnecessary to repeat the wild fancies in which some have indulged in regard to its functions. The tendency has been, either to allow it no office at all, or to assign to it too many offices. Prof. Flint seems to agree with what he states to be the prevalent opinion among physioligists, namely: that the spleen modifies the condition or constituents of the blood; but he does not determine how this is accomplished or in what the modification consists. Prof. Carpenter seems to incline to the opinion that the spleen serves as a diverticulum or temporary reservoir for the blood, to prevent too great plethora of the liver. He thinks it possible that it may also serve as a blood perfecting and also as a blood disintegrating organ. Prof. Dunglison seems to conclude, after reviewing various theories, that it may serve as a cushion or buffer for the stomach. Some have contended that the spleen must be a supplementary organ to the liver; as if a secreting animal organ, like an arc of a circle, must have its complement and its supplement. Such is not the case with other organs. Each contains within or belonging to itself, all that is neccessary to the performance of its functions and the liver is probably not an exception. We might, with equal propriety, call the stomach and even the mesentery and intestines supplementary to the liver. They bear nearly the same relation to it that the spleen does. In regard to the spleen serving as a cushion, we may reply that the works of nature are fitted with such perfect exactness as not to require much cushioning; and when any thing like a cushion is used it is not of so complicated and intricate a structure as the spleen; but, cheap materials and simple structure are used, that is: such materials as are most plentiful in the system, and require least expenditure of nutriment and more force; and which will at any time be useful as food for the machine in case the outward supply should be cut off—namely: fat and cellular tissue.

As to the spleen serving as a diverticulum to turn the current of blood away from the liver, the idea seems to me absurd.

Let us imagine the liver telegraphing to the cœliac axis, "turn more of the blood into the splenic artery, we are full here;" and to the spleen, "hold half of your supplies for further orders;" and again, "send on the blood we are short of material." (To answer the purpose such intelligence in effect if not in words must need be conveyed). Congestion or stagnation of blood in the liver would neccessarily cause congestion and obstruction in the spleen; not primarily, to prevent plethora of the liver, but secondarily, from physical obstruction in the liver—not *ante hoc* but *post hoc* and *propter hoc*. That the spleen serves as a temporary reservoir for blood, and especially for the nutritious portion of the blood, is doubtless true; and that important changes are therein wrought in the blood is doubtless true; but, what? how? and wherefore?

Does it not seem strange that the vaunted intelligence of man—the lauded reasoning faculty has never been able to frame satisfactory answers to these questions? To conclude that nature, or rather the author of nature, has furnished all animals with a complicated organ, intricate, and to a great extent uniform in its structure, and largely supplied with blood and nerves which are superfluous or useless, would certainly be unreasonable and doubtless erroneous; although, some physiologists seem to have about come to such a conclusion in regard to the spleen. Nevertheless, it certainly has functions. Let us see if we cannot by a collection of facts already recorded form a reasonable conclusion as to what those functions are.

The spleen is largely supplied with blood; or rather, a great deal of blood flows through it. The splenic artery is remarkable for its large size in proportion to the size of the organ and also for its tortuous course. (Gray) It is the largest branch of the cœliac axis. (Flint) From this it is evident, either that the organ is important to life and health, or that it is important that a large proportion of the blood should pass through it to receive its modifying influence; and as it has been proven that it is not essential to life the latter is doubtless the reason. The nerves of the spleen are derived from the solar plexus. (Flint.)

This proves that its functions pertain to organic life. The size and weight of the spleen are liable to very extreme variations at different periods of life, in different individuals, and in the same individual under different conditions. The frequent variations in the same individual are due to the malpighian corpuscles. These are spherical or ovoid in form, and are appended to the sheaths of the smaller arteries and their branches, and are formed by a prolongation of the sheaths of the arteries. A delicate plexus of arteries surrounds each corpuscle; and the veins commence on the surface of each vesicle throughout the whole of its circumference. These bodies are very large after digestion is completed in well-fed animals; and especially those fed upon albuminous diet. In starved animals they disappear altogether. (Gray). The number and size of the malpighian corpuscles bear a remarkable relation to the general state of nutrition, being much the greatest in healthy well-fed animals, whilst in those that have been ill-fed they diminish extremely, and in those that have been starved they disappear altogether. (Carpenter). The spleen regularly increases in bulk after the ingestion of a large quantity of fluid, which is absorbed rather by the veins than by the lacteals. It has its maximum volume at the time when the process of chemification is at an end, namely: about five hours after food is taken; and it is small and contains little blood seven hours later, when no food has been taken in the interval. (Carpenter). The provisions of nature in the animal economy, as well as in other departments, are very complete; not only for the accomplishment of general purposes but for securing exact results. The constituents of the blood are the same, and the proportions nearly the same in all persons when in good health; but yet, there are slight variations depending mainly on the amounts of nutritious matter, and of effete or worn out matter, which may be present. It is not reasonable to conclude that there are exact proportions of the constituents which best comports with the perpetuity of life and health; and that the nearer the blood approaches to these exact proportions the better it is suited to the wants and welfare of the system. All power or force in the system, whether for voluntary action, or for involuntary organic movements, is derived from nutritious ingesta. All nutritious material which enters the body, consisting of heat-producing, force-producing, and repairative agents is carried by and in the blood. The amount tolerated even of these having certain limits beyond which evil would result; a certain exact quantity being at all times best suited to supply the wants of the system. If too much nutritious material be present in the blood the excreting organs soon commence to throw it out. Nature however is always economical and does not well tolerate a waste of materials. As the wants of the system are nearly regular and constant, and the supply is always irregular and furnished only at intervals and in large or small quantities as circumstances may determine, there are provisions made for a temporary withdrawal of a portion for use when it may be needed; not only of fat, but of protean compounds; and in some cases of water. Prof. Carpenter speaks of the spleen as being a sort of storehouse for the blood during and soon after the digestive process, and says that the facts "seem to indicate that the spleen, like the thymus of the young animal, is a storehouse of nutritious material which may be drawn upon according to the requirements of the system; just as the fat of the body is a storehouse of combustive substance." It seems to me that the Professor, in this quotation, came very near stating the true functions of the spleen; but he failed to point them out definitely and to tell exactly how the spleen serves as a storehouse. There is probably a mistake in the Professor's remark that the thymus serves as a storehouse for nutritive material. It is more probable that it is a storehouse for lymph or rather for water. The supply of water, which is so essential to the proper constituency of the blood, can be obtained by the embryo while in utero, only from the blood of the mother; and it is probable that when this contains a surplus of water a portion may be deposited in the thymus and taken up again when needed. Be this as it may, from birth until the child reaches an age to appreciate the want of water in the system, and to call for or otherwise obtain it when needed, the supply is irregular and uncertain (and the same will apply within narrow limits to the young animal). During this period the thymus is most active and proportionately largest, and probably abstracts water from the blood when it contains a surplus, and returns it again when it contains too little. Beyond this age water is so easily obtained and so quickly appropriated that the gland or receptacle is no longer needed and it becomes atrophied. The spleen probably serves the same purpose in the child and young animal that it does in the adult—that of a storehouse for nutritious material. Returning from this digression, let us inquire how the spleen serves as a storehouse. Not by the blood passing through it simply; for it passes through all other organs and parts of the system. Not by depositing blood corpuscles, either red or white, for numerous observations have established the fact that they are not deposited. But the malpighian corpuscles are greatly distended during and at the close of chymification and absorption, by the deposit of an albuminous substance which is gradually absorbed again as needed. These corpuscles are small in man and are generally empty when post-mortem examinations are made. Hence their presence in the human spleen has been denied; but they doubtless exist. (Carpenter). In herbiverous animals, whose food is bulky and often taken in large quantities and at long intervals, they are large and easily demonstrated. Hunger, as well as thirst, depending on the wants of the system does not supervene on the emptying of the stomach, but on the emptying of the spleen; because, until then the blood is not lacking in nutritive matter. A man or an animal will eat freely as soon as the stomach becomes empty, and sometimes before; but decided hunger does not occur until the nutritious substance has all been taken up from the spleen. Then, in a state of health it becomes very decided. This deposition and re-absorption of a single constituent of the blood depends, no doubt, on the law of endosmosis (whatever that may be). We cannot explain, of course, just how it is done or why it should be so; but it is no more mysterious than the secretion of bile by the liver, and of urine by the kidneys, or the deposit of fat when the blood is overloaded with hydro carbons, and its reabsorption when such material is lacking. The blood probably enters the lacunæ and sinuses in contact with the surfaces of the malpighian corpuscles and the albumen passes through the membrane by endosmosis or exosmosis, the direction of the action depending on the amount of albumen suspended at the time in the blood. The use of the spleen then would seem to be, to equalize the constituency of the blood, and obviate the ill effects which might arise from large ingestions of food and long intervals of abstinence—to preserve, constantly, as nearly as possible, the exact proportions most conducive to perfect health. From this view of the case we can understand how the spleen may be a necessary and useful organ, although life and a tolerable degree of health may be preserved without it; and how, by an adaptation of habits to the changed condition, its loss might not be seriously felt.

Animals from which the spleen has been removed are very liable to die of apoplexy if they take a large quantity of food at a time, but if they eat moderately and frequently they do not suffer in this manner.—(Carpenter). Great voracity in animals after removal of the spleen was noted by earlier experimenters, but later ones have observed no change in the appetite. Prof. Dalton has also observed that animals, particularly dogs, sometimes present a remarkable change in their disposition; becoming unnaturally ferocious and aggressive.—(Flint). Prof. Flint has also frequently noticed the same result and especially in a case which he describes in his work on physiology. These are the results which we might anticipate from the conditions which would arise from an absence of the organ. The plethoric condition which would follow a full meal would naturally cause over-excitement of the brain, sluggishness of the circulation, a disposition to apoplexy, embarrassment of the functions of the liver, and other secretory organs, and a temporary elimination of the albuminous excess by the secretions; and by increased combustion with increase of animal heat, or it might be, with increased deposit of fat. But in a few hours the supply in the stomach being exhausted, and no supply in the storehouse to be drawn upon, a condition of spanæmia would supervene attended with sharp pangs of hunger and followed by debility. The animal machine would run like steam machinery without a balance-wheel or regulating valve. A great many experiments have been made to determine the difference, if any, between the blood in the splenic artery and that returning through the splenic vein; or, in other words, to ascertain what changes were wrought in the spleen; but the results have been so various, so different, and in fact so contradictory, that but little light has been thrown upon the subject. It is not strange that such should be the case when such observations are confined exclusively, or nearly so, to the proportionate amount of red and white blood corpuscles and fibrine; and are made without regard to the condition of the animal, whether well-fed, or ill-fed; and without regard to the time that has elapsed since food was taken; or whether digestion, chymification, and absorption were commencing or progressing or completed at the time; or whether a large or small amount of food had been taken; or whether that taken had been albuminous or not. Most probably a careful estimate of the amount of albuminous matter contained, respectively, in the blood of the splenic artery and that of the splenic vein, during digestion, after the completion of digestion, and again after a long fast, would give more satisfactory results. The substances forming the albuminous group are applicable to the support of the animal body; both by affording the materials for the nutrition and reformation of the tissues, and also serving (if required) for the maintainance of heat. The peculiar nutritive value which experience shows that such preparations possess must be attributed to the albuminous matter which they hold in solution.—(Carpenter).

The spleen is large enough to hold a considerable proportion of the albuminous matter circulating in the blood at any one time; but it is not large enough, in health, to serve as a reservoir for more than a very small proportion of the entire bulk of the blood. The enormous enlargement caused by congestion, which sometimes becomes chronic, is not physiological but pathological. It is not a healthy and necessary, but a diseased action. Physiologists have erred it seems to me, both in assuming too many duties to the spleen, and in allowing it none at all. If we have found that it exercises one important function that is enough, and probably, is all that it does exercise. There has seemed to be a strong desire to consider it a blood-making organ; but a signal failure to present proof. I cannot see why we should need a blood-making organ any more than a brain-making, or a bone-making organ. Each tissue seems when reproduced to reproduce itself, or to contain within its own organization the conditions which determine its proliferation, by the absorption and appropriation of its own proper constituents; and the blood is probably not an exception to the rule. Prof. Carpenter seems to think that the spleen, in addition to being a diverticulum and storehouse for blood, may be also a blood-making or blood-perfecting, and a blood-destroying or disintegrating organ. I cannot see the necessity, the propriety, or the proof of all this; but conclude that the spleen has but one office, namely: that of separating a portion of the nutritious matter from the blood when it is rich in such material, that the functions of various organs and especially those of the liver may not be obstructed or deranged thereby, and again yielding it up gradually as it may be needed on account of the withdrawal by appropriation of such material from the circulating fluid which "is the life thereof."

Translations.

Skin Diseases.

BY H. ILLOWY, M. D., CINCINNATI, O.

The dartrous diathesis or herpetic vice manifest itself externally by cutaneous phenomena upon which, the hygienic surroundings, the temperament, age, seat and also idiosyncrasy very often imprint special characteristics. It is well known that Prof. Hardy divides the dartrous *affections* into four principal groups, *eczema*, *lichen*, *psoriasis* and *pityriasis*. We shall give the treatment of these various affections as indicated by our notes.

The treatment of *eczema* must be modified, necessarily, according to the period and different aspect of the affection, according to the temperament of the person affected, according to the locality of the disease (hands, feet, face, hairy scalp, umbilicus, the conjunctivæ, bronchial tubes, etc.,) according to the complications that may supervene. The treatment must be internal and external.

Three distinct periods are recognized in the course of an eczema. In the first period we must combat the predominance of the inflammatory phenomena; emollients and anti-phlogistics are here indicated under the form of luke-warm emolient lotions: flaxseed water, marsh mallow water, baths, bran water, water of boiled starch, but no poultices, so as not to provoke the rupture of the vesicles. Nevertheless in the impetiginous form of the eczema, the rupture of the vesicles being inevitable the poultices have the advantage of calming the irritation caused by the pus; cataplasms of rice, of bran, of potato starch may therefore render some service, but not those of linseed flour, the rapid fermentation of which would be rather hurtful. In cases where there is but little discharge we may prescribe starch powder, the powder ot bran, of arrow root, of subnitrate of bismuth. For internal medication we must limit ourselves to prescribing cooling and emollient drinks; decoctions of barley, lemonades, orangeades, decoctions of wild chicory, of hops, etc. The regimen must be severe, a mild purgative, and avoidance of scratching and irritating causes.

In the second period of the eczema the rupture of the vesicle is accomplished, an abundant morbid secretion covers the parts attacked, and impregnates and hardens the linen covering it.

A treatment derivative on the intestinal tract gives most frequently an excellent result, but the purgative must be light and proportioned to the powers of resistance of the patient. M. Hardy prescribes very frequently the following purgative preparation:

Wild Pansy.	
Sennæ leaves āā.	Lx grs.
Water,	Oij. ℥iij.

In dose of two to three glasses in the morning, fasting, every day or every other day, according to the tolerance of the patient, to provoke three or four dejections per day. This tisan is especially useful in hospitals because the cost is small, determines no accidents on the part of the digestive tube and can be continued for a long time. For patients more fortunately situated we can prescribe the purgative mineral waters: Pullna, Friedrichshall, Marienbad, Kissingen. If we desire to purge our patient we should reject the drastic cathartics as too irritant and choose among the milder purgatives, either the sulphate of soda or of magnesia in doses of ʒijss, ʒiv, ʒv, ʒvi, or castor oil, or still better rheubarb.

With the purgative medication may be associated such preparations as excite the urinary secretions. The nitrate of potassa in a decoction of *dogs-tooth*, *cherry-tree stems*, or of *wall-pellitory*. We have never seen Mr. Hardy prescribe the tincture of cantharides, although in his article in the dictionary he says: "that when used with proper care this article can render considerable service in cases of eczema with sero-purulent secretion." Is it necessary to prescribe the syrups of *fumaria*, of xanthium, of sarsaparilla,* or to administer tannin or concentrated nitric acid in doses of ten to fifteen drops in a litre of water? We have not seen our master resort to these agents even in the most obstinate cases that come under our observation.

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*Herbs formerly much esteemed in the treatment of scrofula and cutaneous affections.

As to local treatment the indications are twofold: calm the inflammation and cleanse the surface of epidermic pellicles, of crusts, sometimes very thick, which cover it. Lotions of marshmallow, root water, bran water, elderflower water, the astringent infusions of melilot and even weak solutions of borate of soda, or even the liquor plumbi subacetatis very much diluted with water, should be employed to diminish the morbid secretion. Then cataplasms of rice, of potato-starch, bran and starch baths, are indicated here. Lastly, very often, when the disposition of the parts affected will permit, M. Hardy directs the envelopment in vulcanized caoutchouc cloth, which brings about a rapid diminution of the local inflammatory phenomena, causes the crusts to fall off and then transforms the sero-purulent secretion into an abundant sudoral flux.

The indication for ointments or the applications of glycerine is rare: it may perhaps however be beneficial on parts laid bare (raw) to protect them from the painful action of the cold air, or from contact with foreign bodies. The substitutive plan of treatment which causes for the moment a marked irritation is followed by lasting improvement. It is thus that in an impetigo of the face and scalp, the applications of the tincture of iodine diluted with alcohol had the most happy effect. In the past year in the service, we have seen tried several times and with immediate success, the application of a solution of silicate of potassa, for an obstinate eczema of the arm, and of the foot in a young lymphatic girl. The patient after a few days bore the applications well, which at first were somewhat painful.

In a very obstinate and very chronic case of eczema of the ears in a young girl, markedly lymphatic, Prof. Hardy very happily modified the course of the malady by the applications of a solution of nitrate of silver.

In another case of relapsing eczema the treatment of Hebra was followed by success:

℞ Water, ℥ix ss.
Caustic potass., ʒiij ¾.
M.

At the same time a tisan of hops and wine of gentian was ordered for the patient.

We have also very often employed the following formula:

℞ Glycerine,
Distilled water, } ää ʒ 3¾.
Proto-nitrate of mercury, gr. 3-7.
M.

Especially in cases of *eczema fendillé*,* and in cases that have reached the third period.

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* Fendille—broken eczema wherein the cuticle becomes broken, forming rifts—a form of eczema also denominated by some eczema-rubrum.

Lastly to complete this enumeration we will recall the formula for a pomade prescribed by Prof. Hardy in the last period of eczema, when all inflammation and all running has disappeared:

℞ Cold cream, ʒvij ss.
Citrine ointment, ʒss.
Camphor, grs. viij.
M.

It must not be forgotten that eczema whether local or generalized is a manifestation of the *dartrous diathesis.* Experience has taught that we can combat this more especially with the arsenical preparations. The formulæ are numerous; but arsenic is a poison—a remedy therefore which when given, must be carefully watched. M. Hardy therefore only directs, feeble arsensical solutions; leaving aside Pearson's liquor, or Fowler's solution he prescribes as follows:

℞ Water, ℥ix ss.
Arseniate of soda, grain ½.

Dose—a table-spoonful for an adult. He doubles the dose after a few days if necessary. It is self-understood that the administration of purgative tisans should cease, when we commence the arsenical treatment. So M. Hardy replaces in the Hospital St. Louis, the tisan of wild pansy and senna, with a cooling tisan, as for example, a tisan of barley, either alone or combined with dogstooth.

But although having a predilection for the above method of administering arsenic in solution, Prof. Hardy, nevertheless, sometimes prescribes the arseniate of iron in pills when the patient is a debilitated, or lymphatic one.

℞ Arseniate of iron, gr. one-seventh.
Conserve of roses, q. s.

M. for one pill—two to four of these pills to be taken per diem. We said at the beginning of this chapter, that the treatment of eczema varied according to the form, and the seat of the dartrous manifestation.

In certain chronic forms it becomes necessary therefore to seek to modify the tissue by medicinal applications. In one case of circumscribed chronic eczema, besides the tri-weekly (wheat) starch bath, and the cataplasms of potato starch, Prof. Hardy prescribed the following liniment:

℞ Oil of sweet Almonds, ʒv.
Juniper oil, ℈iv.

To be applied for eight days over the eczematous region.

Chronic eczema intertrigo with a slight oozing, of the legs and testicles is modified by the application of the following:

℞ Cold cream, ℥j.
Calomel, grs. 30.
Tinc. of benzoine, grs. 30.

To be spread at night over the diseased parts. Further the diseased parts are to be washed morning and evening with melilot water.

When the hairy scalp is the seat of the disease, in cases of pityriasis, Prof. Hardy institutes this treatment: Morning and evening the following ointment (the hair having been previously cut short) to be spread upon the head:

℞	Axungia,	℥j.
	Flowers of sulphur,	grs. vij ss.

A sulphur bath every second day; every day a table-spoonful of the sulphuretted syrup of Crosnier to be taken.

Against chronic pityriasis of the face, we have received another formula, a treatment differing very little from the preceding.

℞	Cold cream,	℥j.
	Flowers of sulphur,	grs. viij.
	Tincture of benzoine,	grs. xx.

Then wash the face with an infusion of melilot. But, a propos of eczemas of the face that have reached the second stage, we must signalize the good effects of vapor baths. The water having reached the stage of minute subdivision, impregnates the tissues of the skin and replaces for the face, the use of the starch baths, so useful for other parts of the body.

The persistance of eczematous eruptions may be maintained by error in regimen, by excess of fatigue, by violent emotions, or the use of certain aliments as fish, coffee, strawberries, for example. These causes must be sought and removed. At other times the manifestation of the dartrous diathesis, is excited by the administration of certain medicaments; it was thus in the case of a young epileptic woman that entered the hospital for a very acute attack of eczema; she was rapidly cured by the use of purgatives, and baths, and decotions of linseed. Having resumed the bromide of potassium a short time after her discharge from the hospital, a fresh attack of eczema appeared which compelled her return to the hospital. In certain cases, uncleanliness is an important factor in exasperating the intensity of the manifestations; dish-washers, cooks, persons handling irritating substances. Lastly the existence of an animal parasite, may be the occasional cause of an eczema. Nothing is more frequent than to see eczema of the breasts in females, either provoked or maintained by the itch parasite. It is therefore with the suppression of the cause, that we must begin our treatment, recollecting however that in eczema of the breasts consecutive to the itch, the lesion may persist for a long time, even after the cure of the itch. At other times, gestation, nursing, causes the persistance of eczema of the breast, and this will not disappear, except with the disappearance of the condition determining the manifestation. We shall not enter into the details of the treatment of the various forms of eczema, holding ourselves merely to the subject in general. It is well known that Prof. Hardy has but little faith in the reality of a distinction to be made between *herpetic and arthritic* eczema. The fact is that very often in his service, the same mode of treatment was employed for both forms, and there was not observed that they were either a longer time in recovering, or that they relapsed more frequently than those treated in other wards where arthritic eczema being held in honor, was combated by the alkaline treatment.

Nevertheless M. Hardy recognizes the great influence of a lymphatic temperament when combined with a dartrous diathesis. In these cases therefore having combated the first manifestations, with cataplasms and purgatives, he prescribes arseniate of iron, cod-liver oil, and wine of genitan.

To complete these notes we must say a few words of the mineral waters, although naturally we were not able to judge personally their affects during our internship at St Louis, because M. Hardy in the hospital generally limited himself to the baths (wheat starch), rarely alkaline baths and sometimes the sulphur baths; these latter demanding great prudence and surveillance in their use. Further more we have indicated above, the use of the vapor douche, when the eczema occupied certain special regions, as the hairy scalp, the ears, the face, that is those regions which cannot be plunged into a bath. The mineral waters indicated in the first period of the disease, or at the outset of the second period are the purgative ones, Hamburg, Kissingen, Marienbad, Hunyadi, Pullna. These waters being transportable it is not necessary, that the patient should go to these places for a season if inconvenient.

But where the malady has reached the squamous period or at the period when the crust and squamæ are intermingled, a season at a thermal station may hasten and consolidate a cure. But we must act with prudence, for a new eruption may result from a badly directed or too energetic thermal treatment. M. Hardy, frequently advises St. Gervais in Savoy, purgative waters somewhat diuretic and slightly sulphurous; he prescribes them more particularly in cases of eczema tending to become chronic in nervous people. In such cases waters having too high a temperature or too strongly sulphuretted must be avoided. Lastly when all inflammation has disappeared and chiefly in the pityriasic form of the diathesis, moderate use may be made of the waters of Bareges, Bagneres de Luchon, Aix Schinznach, and Aix la Chapelle, or still better of those of Vernet and of Enghien. If the eczema be in a lymphatic or scrofulous patient the waters of Uriage should be recommended.

In very obstinate and frequently relapsing eczema the waters of Loueschè will provoke a salutary substitutive inflammation. Finally M. Hardy forbids the use of waters purely alkaline and above all the use of sea baths.

One of the most tenacious forms of the dartrous diathesis is *Psoriasis*. It is not our purpose to occupy ourselves here with the various aspects the malady may present, or the diverse localities that it may occupy. It suffices for us to recall here that it is a malady that has a great tendency to relapse, and that the more frequent these relapses the more tenacious becomes the malady and the more difficult to cure. The first thing necessary therefore is to try, if not to cure, at least to palliate the manifestations and combat the complications.

In the initial period, the general emollients, the laxative tisans and mild purgatives are very useful. Then, the acute manifestations once dissipated we must resort to the modifiers of the dartrous diathesis, both general and local.

Here again it is the solution of arseniate of soda that Prof. Hardy chiefly employs.

In one very remarkable case I saw the good effects obtained by the administration of copaiva in doses of sixty to ninety grs. per day in the form of an electuary, associated with an equal quantity of magnesia.

But it is difficult to make a patient support this treatment; the odor is repugnant, its effect on the digestive tract soon manifests itself, causes irritation and compels the suspension of the medicine. There is nothing superior to arsenic internally administered for psoriasis.

For external treatment the very frequent use of the emollient baths at the beginning, replaced later on by vapor baths and even sulphur baths, which latter being slightly irritant act as topical alteratives. The baths with the hydrofere as in eczema may be employed here. In local applications we must be very prudent. I transcribe here several formulæ given by M. Hardy:

(1) ℞ Axungia, ℥j.
Sublimated sulphur, grs. xv., or grs. xxx.
M.

(2) Proto-iodide of mercury, grs. xv.
Axungia or glycerine, ℥j. to ℥jss.
M.

(3) ℞ Ung. citrini., ʒj. to ʒij ss.
Axung., ℥j.
M.

Lastly the preparations of tar combined with axungia or glycerine: e. g.

Glycerine, ℥j.

Heat and add wheat starch (amidon) sufficient to bring it to the consistency of pomade, then add:

Oil of juniper, ʒj. or ʒj ss.
M.

As for the other modifications of the dartrous diathesis the regimen should be severe; Excesses, the use of highly spiced foods, wine, coffee and liquors are the causes of relapse just as in eczema.—[*Progres Medical.*

POTION FOR UTERINE HEMORRHAGE.

℞	Aq. distill.,	℥iij.	
	Syr. gum. arab.,	ʒv.	
	Gum. tragacanth,	grs. xvss.	
	Pulv. ergot (freshly pulverized),	ʒj.	
	Extract valerian,	grs. lxxv.	M.

A tablespoonful to be taken every hour or every two hours according to the effect produced—very efficacious in menstrual hemorrhages.[—*Progress Med.*

CHLOROFORM IN HÆMOPTYSIS.

We extract from the *Lyon Medical* and the *Journal de therapeutic* the following paragraph giving a remarkable result obtained from the application of chloroform.

A man forty years of age suffering from tuberculosis in an advanced stage was siezed with hæmoptysis which could not be arrested with ice, with turpentine, with ergot, and the application of heat and sinapisms to the extremities. Doctor Alex. Weir, seeing that his patient would soon succumb, had recourse to the local application of chloroform. Upon a piece of flannel of the dimensions of the affected part he poured two ounces of this liquid applied it immediately to the chest, and covered it thickly with several layers of clothes to prevent its evaporation. The effect was instantaneous, the cough and the hemorrhage ceased immediately and in a definitive manner. This man who was addicted to drink, died later on, while on a drunken spree with a tremendous hemorrhage which was instantly fatal. Dr. Weir, is of the opinion that the chloroform here acted as a revulsive—we are of the same mode of thinking.—[*Tribune Medicale.*

THE OIL OF ALEURITIS TRILOBA* AS A PURGATIVE.

We find in the *Journal de therapeutic* the resume of an article by Dr. Ascamendi, upon a good substitute for castor oil; this is the oil of the aleuritis triloba called in Ceylon "Oil of Ketune." It has the advantage over castor oil that it is not at all disagreeable to take, the taste being that of nuts. The dose of ℥ss. suffices to comfortably purge an adult. It is an excellent aperient. Its effects on the intestines are those of castor oil; it acts in about four hours without pain or colic. The author recommends the following mixture:

℞	Ole. aleuritis trilobæ,	ʒjv.	
	Sacch. alb.,	ʒjv.	
	Gum arab.,	ʒiij.	
	Ag. fontan.,	ʒiij.	M.

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* Candle-nut-tree—A plant common to the Sandwich Islands and those of the Southern Seas. Also found in the West Indies. The oil is known in Jamaica as Spanish Walnut Oil, and in India as Begaum Walnut Oil.—DUNGLINSSON'S MED. DICTIONARY.

The author has also obtained good results in cases of obstinate constipation with abdominal pain from frictions over the abdomen with the following linament:

℞	Oil of the nuts of aleuritis trilob,	ʒjv.
	Tinct. cantharid,	ʒiij.
	Ammon, carbon.,	ʒiij.

M. S. A. *Gaz. Med.—Progress Medic.*

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Proceedings of Societies.

PROCEEDINGS OF THE CINCINNATI MEDICAL SOCIETY.

Reported by P. ZENNER, M. D., Secretary.

Society met November 7th. 1877, Dr. Comegys presiding. Minutes of the last meeting read and approved.

Dr. Comegys now arose and said; the time to vacate the chair and induct my successor Prof. John A. Murphy into office has arrived, and according to the direction of our constitution, I beg to offer a few remarks.

I felt myself greatly honored a year since when elected to the presidential office of this new and vigorous society. I then said that it had been organized, in no sense, in opposition to any similar organization in our midst, that all the rivalry we aimed at was in a wide and thorough culture of medicine in Cincinnati; that our aim should be to especially show our practical work in our public and private service. I will not attempt to enumerate all that we have done, for the Secretary will report our year's work; only I will add, that to say the least of it, it is upon a level of the leading scientific societies of the Nation. Very fair reports have been regularly published so that the medical world has, had a fair opportunity of judging of our progress as a society.

The society has now a membership of nearly sixty and with a little effort the number could be considerably increased, and I hope the members will work to that end. The medical community has become fully convinced of the importance of society life as an indispensable means of culture, for it is safe to say, that no one can ascertain how much he really knows, or how much he is ignorant of outside of the active discussions of a well organized medical association.

I thank the Society for the great kindness and respect shown to me in my office as chairman, and I now take great pleasure in introducing the President elect, Prof. John A. Murphy, whose long and distinguished career in our profession here has entitled him to the distinction which you have conferred upon him.

Dr. Murphy then made a few remarks, returning his thanks to the society for the appointment, then took the chair.

Dr. Brunning reported the following case. Mrs. S. German, aged 48 years, married, slight frame, temperate habits, mother of four healthy children, family history good. About three years prior to her present illness, August 3rd, and commencing shortly after the cessation of her menses, she was subject to severe headaches, with coated tongue, slight acceleration of the circulation, vertigo, and accompanied usually with nausea and vomiting, indeed, the symptoms generally found in that peculiar state of the system denominated commonly, "billious" attacks. They occured with considerable regularity about every nine to ten weeks, and would last from three to four days, when she again returned to health, and went about her ordinary house-hold duties. In the past year, however, they occurred less frequently, having had but three paroxysms. On the morning preceding the evening of her present illness, she went to market as usual, and was in the best of spirits. In the afternoon she complained of pain in the left side of her head, with nausea, but no vomiting, and retired about an hour before her usual bed-time. She dropped asleep in a short time, and her husband says, slept very tranquilly, and nothing unusual noticed until the morning, when on attempting to arise, found she had lost control of the right side. About an hour after this discovery, the severe pain in the head returned, with uncontrollable vomiting. This state of things lasted for two weeks, when the vomiting ceased, and the hemiplegia was decidedly improved, so much so, that she used her hand tolerably well—but occasionally dropped articles from it—and was able to walk about the room unassisted, although her gait was tottering, favoring the right side. The prognosis certainly favorable. This respite was unfortunately of only short duration, another train of symptoms more severe than the first set in—severe tonic spasms both of the hands and feet, accompanied with the most excruciating pain came on at intervals of from 10 to 15 minutes. At the commencement of the paroxysm, the extensor muscles of the fingers drew them back to their utmost, while the fifth finger and thumb were strongly abducted. As the spasm increased in intensity, the hands became rapidly flexed, and drawn so tightly, that the imprint of the nails could be readily discerned in the palms. The spasm was more marked in the right hand than in the left. The toes suffered at the same time, but less severely. The feet flexed firmly upon the leg, and the whole raised from six to eight inches above the horizontal position, or if in a sitting posture, about the same number of inches from the floor.

At the same time, the muscles of the right side of the face contracted, drawing the mouth to that side giving the patient the most abject and idiotic expression. She would now scream with pain, which was described as a burning pain, as though the muscles involved in the spasm were on fire. The spasm continued from a minute to a minute and a half. Her mind remained clear during the spasm, and she complained in angry tones should any person touch her. Sensibility was impaired, when examined during the interval, particularly on the right side, she could not differentiate between hot and cold, the left side although impaired could distinguish the difference. No aphasia. Sphincter normal. Temperature occasionally taken, normal, until within a few days of death when it ran up to 104° F. Pulse during illness fluctuated from 90 to 110. Appetite fair. until within a week of her demise, when she refused aliment of all kinds. My friend Dr. Aub made a careful ophthalmoscopic examination of the retinæ, but found nothing abnormal. Patient died October 18th, eleven weeks from the commencement of her illness, from exhaustion.

An autopsy was conducted by my friends Drs. Carson and Dandridge thirty-six hours after death. On sawing through the calvarium and attempting its removal, it was found that the dura-mater was so adherent to the periosteum that it was impossible to remove it intact, consequently was obliged to cut through the membranes in order to get the brain entire. There was no redness of the membranes and nothing abnormal, with the above exception. The brain was carefully examined, (although I am sorry to state, not microscopically) revealing absolutely nothing to account for the phenomena presented in this remarkable case.

Dr. Carson—The case which Dr. Brunning has reported deserves more than a passing notice. As the Dr. stated, the most prominent feature in the case at the time he took charge and at the time of my visit with him, were these peculiar movements of toes and fingers of both sides. They were not strictly choraic, though there was incoordination of movement particulary in the right arm. They were not rhythmic spasms, though there was a comparatively regular interval of two to five minute between paroxysms. The spasm was tonic but of short duration in the several series of movements which made up a paroxysm. There was adduction and abduction of the fingers, with some extensor movements, then followed by a slowly progressing and finally complete flexion of fingers in the palms of the hands accompanying these movements and beginning when they did, pain was in the fingers and toes, more marked in the right side, in the fingers and a part of the hand and fore-arm. No pain was spoken of in the left forearm. There was entire relief from pain, when the movements ceased. She also spoke of a burning sensation or one of warmth about the face and head at the time of the movements, though there was no well-marked flushing of the face. As the Dr. related, the power to grasp was not unnaturally unequal in the two sides, and it was not strong in either hand, sensibility in most of its departments was affected, but especially the sense of temperature and that much more in the right hand and arm. Requesting her to undertake any movements with her feet or hands would soon bring on the paroxysm. She could not write and as before stated there was decided incoordination, which could be easily demonstrated by having her attempt to pick up any small object before her.

As Dr. B. suggested, at the time the movements reminded one of those described by Hammond and others after him as "athetosis," but they differed in some respects. The athetosis motions are said to be constant in sleep or not, whereas these were not so. Both sides in this woman were affected, another point of dissimilarity. There was no hypertrophy of the muscles involved; but she had lost much flesh since the beginning of her attack.

It would seem that, in the sequence of events as narrated, the headache and rapidly appearing paralysis or paresis of the right side, was an important starting point for the interpretation of the case. Headache, sick stomach and paresis of one side, are sufficient to localize the lesions, in the beginning, as in the left side of the brain. They suggest a destroying lesion, of a reparable kind about the motor centres of that side of the brain. With that view, the subsequent discharging symptoms which followed closely the symptoms of a destroying lesion, might be referred to the affection of convolutions near the left corpus striatum. Yet it would be difficult to explain the bilateral discharging symptoms on that ground. We do n't believe that we can leave out of view, in any attempt at explanation, the earlier symptoms which pointed to brain lesion and do think that the later ones must be looked at with reference to a similar origin and not as coming from the cord.

There is another and very important point of view, and that is from the side of experimental physiology and pathology, which have of late, in the hands of Fritz, Hitzig and Ferrier, thrown interesting light on the question of localizations of brain lesions.

The peculiar movements in this woman were quite special and involved only the fingers and toes. The discharging lesion would therefore appear to have been very limited and should be found according to the experiments referred to, somewhere in the human brain about the convolutions just anterior and posterior to the fissure of Rolando — the ascending frontal and the ascending parietal convolutions. The imperfect development of the paralysis and its transient character are also characteristic of that form of hemiplegia originating in some cortical lesion.

When we came to connect symptoms and lesions, the case is not a satisfactory one. The only coarse or perceptible lesion was the closely adherent dura-mater to the skull, which as evidence of more or less slowly developed inflammation might explain her former attacks of headache, but does not seem to be a sufficient explanation of the peculiar symptoms which began ten weeks before with headache, sick stomach and paresis of the right side, and which finally, through the exhausting effects of these uncontrollable movements, produced her death.

All the convolutions were examined for obvious changes but none were found. Whether there were microscopical lesions or not, is unknown. A general apparent shallowness of gray matter was noted.

PROCEEDINGS OF THE HIGHLAND COUNTY MEDICAL ASSOCIATION.

Reported by W. W. SHEPHERD, M. D., Secretary.

The "Highland County Medical Society" met at the Court House, in Hillsboro, on Thursday, January 11, 1877; the President, Dr. Spees, in the Chair.

The minutes of the preceding meeting were read and approved.

The applications of Drs. H. Whistler, of Newmarket, and A S. Bryan. of Buford, were reported upon favorably, and they were admitted to membership.

Dr. P. H. Weaver read a report upon the "New Remedies," which was discussed by the members present. Requested to report further at the next meeting.

Dr. A. S. Bryan read an Essay upon "Syphilis," which gave rise to a free discussion and interchange of opinion upon the subject. The Doctor was requested to read a further report upon the same subject at the next meeting.

Dr. Conard, of New Vienna, and Dr. Fulton, of Lynchburg, were appointed Essayists.

The following resolution was unanimously adopted:

Feeling that the time has come when the large amount of pauper practice in our respective communities has become burdensome; and whereas, there is no other class of business men who contribute so largely of their substance, for the alleviation of pauperism, without remuneration, as Physicians, therefore be it

Resolved; That this Society appoint a committee to confer with other members of the profession, and with the Township Trustees of their respective townships, urging upon them the necessity of devising some means of providing for the payment of a just and reasonable fee for medical services rendered, and for medicines furnished to persons unable to pay for the same.

Drs. B. D. Granger, of Russell's Station, F. M. Thomas, of Samantha, and W. W. Shepherd, of Hillsboro, were appointed as the committee.

On motion, adjourned, to meet at the Court House in Hillsboro, on Thursday, April 12, 1877, at 10 o'clock A. M.

PROCEEDINGS OF CLARK COUNTY MEDICAL SOCIETY DEC. 14th, 1876.

Reported by J. KAY, M. D., Secretary.

The Clark County Medical Society met at the usual hour, Dr. Reeves, President in the Chair.

Dr. Pollock. I desire to occupy your attention with the report of a case to which I was called, not because of its rarity, but to tell you how narrowly I escaped being criminally negligent, owing to an inherent and well known modesty. Nov. 19th, 1876, I was called in the absence of her usual medical attendant to visit Mrs. F. near Enon, Ohio, aged 76 years, widow,—of large frame and rugged looking. Found her suffering from a mild attack of inflammation of the left lung. She also had a chill at about the same hour each day for three days in succession, which ceased under the use of a solution of quinia and in due time the old lady recovered from all her physical disabilities, as she avers "in spite of the medicine." This much for an explaination. Exactly one week after I dismissed her as convalescent, I was recalled in haste. All I could learn from her was, only that she had a chill and had thought she would never again get warm and if we would let her alone and she could die, it would be all right. From others I learned that for the two days preceeding the attack, she had remarked upon her good health and how well she felt and in the morning in question had partaken with relish of a hearty breakfast, and all went well until 10 A. M. when she had a violent chill and complained of intense pain in her epigastric region. The pain coming on in paroxysms and followed by moments of comparative ease. A neigbor woman who hastened to assure me that she was "homœpathic" and had unbounded faith in the sovereign virtius of a wet towel applied to the bowels as a remedy for pain in that region, and that she had applied her remedy and remarkably relieved the old lady's suffering and she was now almost well. Another old woman privately informed me that her father had died in a "congestive chill" and this case was identical with that which had deprived her of a paternal ancestor. And it had a superficial resemblance to a "congestive chill" and gained weight from the history of her previous attack and her residence being near Mad River.

The patient was lying on her back with her *limbs extended*, tears in her eyes and countenance expressive of great pain. Tongue, pulse and temperature, normal, *no vomiting*, extremities and surface of body warm as felt by the hand and the temperature carefully taken by a Casilla Thermometer.

She had taken nothing save some port wine. I observed her for some time and was at a loss as to what it all meant and finally to be doing something ordered a mustard poultice to the abdomen and gave no medicine internally; while observing her, she seemed to become all at once delirious and to lose all feeling of pain, would smile and point with the finger in various directions and pick at the bedding and wall and beckon for some one, and the face looked as if dissolution might be at hand. The person that applied the poultice to the abdomen told me that the bowels were swollen, I expressed a desire to see all about that and removing the covering at once, discovered a right femoral hernia very tense and tender. To elevate the shoulders and pelvis, flex and rotate the thigh upon the abdomen, give chloroform and reduce by taxis, was very fortunately the work of but a few minutes. As the protruded portion suddenly slipped back into the abdominal cavity, the old lady awoke with a shudder of the entire body and smilingly exclaimed "Oh! how good I feel!"

A suitable truss was ordered and the next day the old lady was on her feet around the house, contrary to my orders however, but so far as I know without any ill effect in consequence. She told me, that hitherto she had never had the least symptom of rupture. and so far as she could recall, she had not been lifting or stooping, that her bowels had been regular and passages easy. That she did not know what was the matter or when it occurred, only that the pain was sudden and intense in the stomach from its inception. I do not think she could have survived long unrelieved, having already suffered nearly five hours. The points to which I wish to call attention, are the absence of certain prominent symptoms of hernia, as the absence of vomiting, the position of patient, and her ignorance of the cause and seat of her pain and lack of any knowledge of a producing cause, and the pains taken in deceiving the Dr.—for the "homœpathic" wet towel panacea female had observed the little knot in the groin, and had counselled others to not mention it to me and the other idiot, instead of telling me there was a little lump in her groin, merely said her bowels were swelled, as if it might be from flatus, and adding to the difficulty of arriving at a correct diagnosis, and one does not always feel called upon to make an ocular inspection of the external appearances of the abdomen of all his female patients who complain of having had a chill and of violent pain in the stomach; art is long, life is short, experience is deception and judgement difficult.

Dr. Seys reported a case of irregular menstruation in a young woman eighteen or twenty years of age, which he diagnosed to be due to faulty innervation. He used electricity, applying one electrode of the galvanic battery to the sacrum and the other immediately above the symphysis pubis and borne close down upon the surface. The last two menstrual epochs for the first time in her life appeared regularly *i. e.* twenty-eight days apart and of normal quantity.

Dr. Ewing related a case of fatty degeneration of the liver, the first that he had ever seen. Mrs. L. aged about forty years, had been in poor health for more than six months. Pregnancy was at first suspected, but this was found, from a critical consideration of her case to be a mistake. After having a painful sense of strictine and pressure in the region of the liver for the length of time above mentioned. She died very suddenly in a state of syncope. Upon post mortem examination it was found that the liver was pale and mottled on the surface, and structure was very friable and of a yellowish brown cast of color. The organ weighed eighty-nine ounces.

The society then adjourned to meet again on the second Thursday in January.

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Editorial.

ANNUAL CONTEST FOR PRIZES AT THE GOOD SAMARITAN HOSPITAL.

For three years in succession Dr. W. W. Dawson has offered special prizes to the students of the Ohio Medical College, for bandaging, surgical drawing, and dissection, and the contests have taken place each year at the Good Samaritan Hospital. January 31st., was the day for the fourth examination. The students, to the number of 200, comprising a class which seems to have aroused the pride of the members of the faculty, were gathered in the amphitheater, and were deeply interested, along with the physicians and others who were invited to witness the contest. Something additional was given in the form of an amputation of the left leg of a patient in the Hospital, by Prof. Dawson. The patient was suffering from elephantiasis. Esmarch's bandage was applied, successfully preventing the loss of blood.

The contestants in bandaging were: Messers. O. C. Andre, S. B. McKerrihan, C. N. Galloway, J. B. Ballinger, W. H. Munich and S. Harmount. These gentlemen did their work in the presence of a committee of five, composed of Drs. A. E. Heighway, A. E. Jones, A. A. Mannon, J. M. Hadlock and R. H. Thornton, of Newport.

The work was of an exceedingly satisfactory character, eliciting encomiums from all who witnessed it.

There were but three contestants for the prize in drawing, Messrs. J. C. Buttemiller, C. W. King and J. W. Melcher. The committee to examine the drawings was composed of Drs. F. P. Anderson,

J. C. Culbertson, A. J. Drury, C. O. Wright and C. H. Fortmeyer. Two of the drawings would be a credit to any professional artist.

In dissection, two contestants appeared, Lewis Green and H. E. Caldwell. Their specimens were arms with the veins and arteries injected. The work was so well done as to render it difficult, indeed, to find the winner of the prize. The committee charged with that duty was made up of Drs. M. B. Kellar, R. H. Reemelin, L. A. Querner, J. S. McPherson, of Cambridge, Ohio, and Wm. E. Shaw, The decision of the committees will be reserved until the commencement excercises take place, February 27. After the work of the day was ended, the company was regaled with refreshments prepared under the direction of Sister Anthony, the eminently successful manager of that truly charitable institution, the Good Samaritan Hospital.

ERRATA. The paper on ALCOHOL AND ITS EFFECTS, published in the January number, should have been credited to D. S. Lyman M. D., of Goshen, O. The Mss. was forwarded by Dr. Kennedy, Rec. Sec. of Clermont County Med. Society. Dr. Lyman's omission to place his name on his paper caused the error.

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Review.

Ophthalmic and Otic Memoranda. By D. B. St John Roosa, M. D., Edward T. Ely, M. D. New York: 1876. William Wood & Co. For sale by Robert Clarke & Co. Price $1 00

This small book, though containing only 230 pages, gives most of the important points in both ophthalmology and otology. Its style is very concise, though not devoid of clearness. The anatomical portions are quite full. The work is intended to assist students while attending lectures, and as a book of reference to busy practioners. For these purposes it will doubtless prove of value.

The Electric Bath. Its medical uses, effects and appliances. By George M. Schweig, M. D. New York: 1877, G. P. Putnam's Sons. For sale by Robert Clarke & Co. Price $1 00

The author describes his method of giving the bath, together with the appliances necessary thereto, but devotes the greater part of his book to its special therapeutical applications, giving the histories of illustrative cases. He claims for the electric baths all those higher remedial virtues which have of late years been attributed to general electrization, claiming, at the same time, that this is the only true method of general electrization.

The book is written in a spirit of candor and fairness, and is worthy the perusal of those interested in the subject.

Chemical and Microscopical Analysis of the Urine. By Geo. B. Fowler, M. D., New York: 1876. G. P. Putnam's Sons. For sale by Robert Clarke & Co. Price $1 00.

This, the second edition of this work, is somewhat larger than the first. Its subject is treated quite fully, and is valuable to the practioner.

Modern Therapeutics—a Compendium of Recent Formulas—Approved Treatment, and Specific Methods in Medicine and Surgery.—By George Napheys, A. M., M. D. Philadelphia: 1877. D. G. Brinton, Publisher. p. 600.

The fact that the three former editions of this exceedingly valuable book have been so so quickly exhausted, and a fourth edition called for, is a sufficient proof of the popularity that it has attained. As justly stated in the editors preface, by "acquainting the reader with the exact treatment of each disease by living clinical teachers and careful practitioners of several countries, it vastly widens his therapeutic resources, prevents him from becoming a routinist, and inspires him with confidence in the remedies he employs." As a book for the busy country practitioner who has not the time to read all the new medical publications that appear, this work on therapeutics is more than useful. The various editions have all been decided improvements on former editions, and with this last fourth edition, the work may be said to be almost perfect. We can heartily recommend it to the readers of the LANCET AND OBSERVER. T. C. M.

A Treatise on Hernia: By Greensville Dowell, M. D. Philadelphia, 1876.

A few months since we had occasion to review at length a treatise on "Yellow Fever" by the author. Most authors are content with issuing one volume a year, Dr. Dowell seems to be an exception to the general rule. There are many persons who will object to the style of writing adopted by Dowell; his vocabulary is evidently very small, and his writing is of the plain, unvarnished conversational type. Were it not for the fact that the book contained many points of real practical interest and value, there is no doubt but that it would meet with much harsh criticism. It is refreshing once in awhile however, to read a book like Dowell's, for its author, without seeming to be aware of it, is very humorous. The chief point of interest in the work is the history of his original operation for the radical cure of hernia. The remarkable success obtained by his operative method will attract attention not only at home but abroad. The operation is described as follows:

"The only instruments used are a double spear-pointed, semi-circular needle, with an eye in each point, silver wire, a piece of cork, soft wood, or a roll of adhesive plaster. The operation is performed by the following method: The parts being well shaven, if in the inguinal region, or in any site where there are hairs, three lines are then drawn, with a small brush and tincture of iodine, parallel to the direction of the hernia orifice, centre line immediately over the internal orifice, and passing down to the external orifice, if the hernia be oblique inguinal; in other varieties immediately over the greatest enlargement of the tumor. The needle is then taken hold of by the left hand at its unthreaded end, then the right hand, with the thumb and fore-finger, pulls up the skin and superficial fascia as high as it can be done, to the right of the middle line, letting the middle line be just below the point of the thumb. The threaded end is then pushed through the fold held below the point of the thumb and index finger. The fold is then let loose, and the threaded end taken by point with the thumb and fingers of the right hand; it is then pulled on until the unthreaded end comes just under the outside line of the right side of the operator and left side of patient. The index finger of the left hand is made to invaginate the integuments as far as possible, and the finger pushed to the right under the left tendon of the patient, feeling well the wall. The right hand then raises the needle so as to have its point directly over the point of the fingers and a little to the outside of it. The needle is then pushed directly down through the tendon into the peritoneal cavity, at this stage the point of the index finger of the left hand is varied to the right side of the patient and held under the tendons; the needle is then moved about, to see if it be loose, and turned in its curve, so as to carry the curved portion of its point under the invaginated integuments, etc., to about one quarter of an inch of the right tendon; the end is then brought out on the outside line of the patients right side; this is done by pressing down on the threaded end held by the surgeons right hand. The index finger of the left hand is then taken out and the threaded end let go, and the unthreaded end is then held by the thumb and index fingers of the right hand. It is now gently pulled on until the threaded end comes above the tendon. The point threaded is then reversed, and keeping well down on the tendon, is finally pushed out at the first puncture, and pulled entirely out leaving the two ends of the ligature close together in the same puncture. We have thus put a ligature entirely around the two sides of the rupture, with a sufficient portion of the tendon and muscle to give the thread sufficient surface to act on. And now by pulling on the two ends, the rupture is closed internally, by the *replacing of its natural support*, and then the ends are tied around a roll of adhesive plaster, a piece of cork or soft wood. If one ligature does not close the opening so you cannot push the point of your finger under the wire, another wire is put in in the same way; before trying the first, you may and must, put in enough to completely close the rupture, and they should not be more than a qurter of an inch apart."

The needle used is similar to that employed by Dr. Thomas Wood, of Cincinnati, only much larger.

The author describes in his own quaint language the particulars of his different operations. In a tabular statement he gives the number of his own operations, and the operations of other surgeons who have followed his method as follows:

STATISTICAL RESULTS.

Operators.	Cases.	Cures.	Failures.
Dowell,	68	60	8
Wilkinson,	12	7	5
Bacon,	1	1	
Truehart,	9	6	3
Powell,	2	2	
Rankin,	1	1	
Worthington,	1	1	
Neeson,	1	1	
Worthington & Bibb,	1	1	
	96	80	16

That such an apparently rash and rude surgical procedure should be followed by such good results is something astonishing. Dr. Dowell's first operation was performed in 1859; the last, on Sept. 6, 1876. The work is illustrated by numerous wood cuts and explanatory plates. Taking the book as a whole it is quite a novelty in more than one respect, and will cause a sensation in surgical circles. T. C. M.

Report of the Board of Health of Philadelphia, 1875.

We had occasion to criticise last year's report in, perhaps, rather harsh terms. The fact that the criticism called out a card from Dr. Samuel Ashhurst, of Philadelphia, was a proof that it was felt, even if not deserved as claimed by certain parties. We still continue to cling to the opinion that a first-class sanitarian should be health officer of Philadelphia, and not a first-class politician. What particular claim, outside of politics, Mr. John E. Addick has for the position we fail to perceive. It is a notorious fact that the labor of preparing the annual report with its compilation of vital statistics, has fallen on the shoulders of Dr. H. Ford, and this gentleman has no doubt done his work as well as could be expected under such circumstances, and we do not seek to detract from the merits of his labor. Philadelphia has always been considered a centre of culture, especially medical culture, and why its physicians do not use their political and social influence to create a first-class medical health officer has always been a mystery to the barbarians of the West. If the medical men of the Quaker city are content however to occupy subordinate positions under a political figure-head, they should not complain if their health reports are not regarded with much deference.

Mr. John Addicks is very likely, a clever, genial, gentleman, but he is not widely known as a sanitarian. T. C. M.

Compendium of Histology. Twenty-four lectures by Heinrich Frey, M. D. Translated from the German by George R. Cutter, M. D., Assistant Surgeon to the New York Eye and Ear Infirmary, etc., New York: G. P. Putnam's Sons, 1876.

The author states in his preface, that he has attempted to embody in this work, of two hundred and sixty-three pages, "a short compend of the most essential facts," on the subject of Histology —a task which the reader will, we think, find well done. The author gives a fair statement of the conflicting views of other writers in the various topics discussed. He agrees with Kölliker, in the main, as to the formation of bone from osteo-blasts. He seems to accept the views of Von Ebner as to the mode of origin of the spermatozoa, and regards them as originating through the medium of the parietal cells of the seminiferous tubes. We observe that the author has modified his previous views on several points, and the work throughout shows that the writer is fully alive to the progress of histology.

The author states his facts with terseness and perspecuity, and, in an easy and pleasant style.

The volume is handsomely printed on good paper. The translator has done his part of the work satisfactorily. Altogether it is a handsome, well illustrated book, and will prove a valuable contribution to the library of the medical student and physician.

The Anatomy of the Head, with Six Lithographic Plates Representing Frozen Sections of the Head By Thomas Dwight, M. D., Professor of Anatomy at the Medical School of Maine; Instructor in Histology at Harvard University; Surgeon at the Carney Hospital, and at the Boston Dispensary, Boston: H. O. Houghton, & Co., The Riverside Press.

This little volume of one-hundred and thirty-six pages, the author informs us, in his preface, is intended "to assist the student to gain an idea of the head as a whole, as its exists during life." The authors object is certainly a very desirable one, and his efforts toward its accomplishment are equally praiseworthy. But we fail to see any advantage in his method of frozen sections. We have tested this method very thoroughly and have met with the same difficulties which our author admits viz.: "distortion" of the parts; and that to make his illustrations presentable he found "some conventionality in the treatment, of course, unavailable."

The great object in the dissection and study of the anatomy of the human body is to learn the form, color, size and position of its several parts and organs, and the relations of parts and organs to one another. This latter object Dr. Dwight thinks is neglected in America; we are somewhat surprised at this confession, because while it may be true in the medical school of Maine, and Harvard University, with which institutions the author is connected as a teacher, it is not true in our experience in Cincinnati. Here *Regional*, and especially *Topgraphical* anatomy, is carefully and thoroughly taught.

Dr. Dwight's descriptions are clear, and sufficiently comprehensive and will be found advantageous to the student. The book is well arranged; printed on fair paper, and with good type. But we must again remark that the illustrations, for practical purposes—as a guide to the operator are inferior to those made from dissections of recently deceased, and properly handled subjects.

☞ On the first page of this number, next the cover, will be found a circular from the house of Messrs. Wm. S. Merrell & Co., of this city, calling attention to their line of Pharmaceutical Preparations, Sugar Coated Pills, etc. This is one of the oldest and most reliable establishments in the country; and entitled to the confidence of the Medical Profession.

Orbituary.

Dr. M. B. Graff.

This gentlemen the Demonstrator of Anatomy of the Cincinnati College of Medicine and Surgery, died suddenly on the morning of January 9th. He retired to bed the previous evening apparently in good health, but was unable to be aroused in the morning. In this condition he expired.

At a called meeting of the Faculty the following action was taken:

"Dr. M. B. Graff, a graduate of the Cincinnati College of Medicine and Surgery, and for several years the Demonstrator of Anatomy in that institution, died suddenly at his residence January 9th. Dr. Graff, although a young man, had attained quite a high position in the profession, and an influential standing in the community, in consequence of his acquirements in the medical science and devotion to his profession.

"The Faculty of the Cincinnati College of Medicine and Surgery, therefore, in view of the official relationship with deceased—

"*Resolved*, That in the death of Dr. M. B. Graff our college has lost a most promising alumnus, who, had he lived, would have reflected great honor upon his Alma Mater, the Faculty an esteemed and efficient co-instructor, the profession an honored brother, and the community a useful member.

"*Resolved*, That we deeply sympathize with his bereaved family in their affliction, and extend to them our heartfelt condolence.

"*Resolved*, That the Faculty attend the funeral of the deceased in a body; that these resolutions be published in the daily press and medical journals of the city, and that a copy of the same be transmitted to the family of the deceased. By order of the Faculty;

"J. A. THACKER, M. D. *Chairman.*
"J. TRUSH, M. D.,
"D. D. BRAMBLE, M. D.,
Cincinnati Jan, 10, 1877. *Committee.*"

On learning of his death, the students of the Cincinnati College of Medicine and Surgery passed the following tribute of respect:

"Professor Graff is dead." Scarcely had the sound of his retreating footsteps died away, ere a gloom of sadness was thrown like a pall over our college, by the announcement of his death. The circle is broken; a chair vacant; and we, in our sorrow, can only sit and wonder that one, who so recently appeared before us in perfect health, should be so suddenly called away. In his death, the class mourn the loss of a kind instructor, a genial companion, and a true friend. We desire to extend to the relatives and friends of the deceased our sincere and heartfelt sympathies; and while we ever hold his memory sacred, we will strive to imitate his many noble qualities of mind and heart.

"G. W. MASTON,
"WILLIAM T. CLUTE,
"R. M. JOHNSON,
"J. W. WILLIAMS,
"ISAAC R. SWIGART,
Committee."

At a meeting of the Academy of Medicine, held February 5th, the following resolutions were passed :

Whereas, It has pleased the Almighty to call from this sphere our brother, Dr. M. B. Graff; and whereas, Dr. Graff though a young man, had attained a high position in the profession, and gave great promise for the future, therefore be it—

"*Resolved*, That the Academy of Medicine deplore in his untimely death a great loss to the profession.

"*Resolved*, That this Academy express to the family their sympathy in its great affliction.

"*Resolved*, That these resolutions be spread upon the minutes of the Academy, and published in the Medical Journals of this City.

"H. Illowy,
"J. C. McMechan,
"R. B. Davy,
"A. J. Miles,
"A. Hoeltge.
Committee."

In the death of Dr. M. B. Graff the medical profession of this city has lost one of its most useful members. He was ever the true and conscientious physician, ever ready to answer the call of the most lowly with the same alacrity as of those in affluent circumstances.

Dr. Graff was a most dutiful and affectionate son, being the stay and comfort of his parents in their declining years. A kind husband and father—and under all circumstances a true and valued friend—and a consistent christian gentleman.

THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

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Original Communications.

Article 1.—Inaugural Address.

BY JOSEPH A. STILWELL, M. D.,

President of the Mitchell District Medical Society of Indiana. Delivered at Mitchell, Ind., December 21st, 1876.

GENTLEMEN:—In this Centennial year of American Independence; while we are taking notes of time, and like the mariner, making up our reckoning; may we not take a few items that are retrospective and post-centennial.

> "The time has been when yet the *world* was young
> When Homer swept the lyre and Maro sung."
>
> *See English Bards and Sketch Reviewers.*

Medicine has doubtless had its origin in the accidents common to humanity, and the promptings of kindness, with the natural instincts of animal life to perpetuate its species. Love has been the inspiring impulse, seconded by those ambitions of distinction; aspiration and emulation have fostered, fed, watered and nourished; has been the heat and moisture of the growth, that spreads its umbrageous foliage of to-day.

The Asclepiadæ, or as became in Grecian tutülar, Æsculapians was doubtless of the same class which is now known as busy-bodies, ready at all times with a cure; until those with greater scope of brain-power appropriated the experiences of the many, and concentrated under a frame work of classification, approximated what is now known as a system. These of course, in that early day were looked upon as somewhat supernatural, and as the mists of time enlarged this in their minds vision, were cannonized under a single deification. That it was of eminent promise, is sufficiently attested by the mythological lineage; Æsculapius being no less than the son of Apollo. This is the state medicine had drifted into when history began.

That Hippocrates was one of the Asclepiadæ, can only be confronted by the fact that he was Hippocrates. We might as well say, the Emperor Augustus was not a Cæsar. That Hippocrates appropriated all that was known of the healing art; and lifted the veil of mysticism, in part at least, that was hiding it from the vulgar gaze; threw it into the treadmill of practical experience; and subjected it to the scrutiny of Grecian philosophy, is still only saying that he was Hippocrates.

That in his manhood he erected a system however crude it may seem now, of what was then known of the human economy; classified the tangible, and made deductions of the imponderable from them; is only saying that he was a learned Grecian.

His four "elements," strike the practical appreciation, as the experiences of his day, as an astuteness of research that is not in any way surpassed by the present doctrine of biology, founded on the observations of cell growth and decay in the laborious microscopic researches of Beale.

That blood, phlegm, black bile and yellow bile, were tangible elements, until something better was discovered, does not detract from the author's ability to look further, had the opportunity presented. The theory that "coction" had to take place in order that these "elements" might assume their proper proportions and health ensue, has been handed down from him through twenty-two centuries without a tithe of interruption, save in name to that of "alterative." The soft cushion of flesh surrounding the bones to protect them from harsh contact, has an adaptiveness that is not superceded by the since known fact of more important use. He practiced bleeding, cupping, cauterization and auscultation;

was skillful in diagnosis; divided disease into three periods, and practiced some of the best operations known in the surgery of the present.

That his etiology consisted in the varieties and change of climate and the abuse of diet. stands to-day, as the foundation of the superstructure, whose column is daily extending its slow height upward into the blazing light of civilization, the capital of which, ages and centuries to come may never hope to see in place.

What if he did teach that the glands were spongy bodies, and, their office to absorb moisture from the surrounding parts; and that the brain was a large gland to consume the vapors from the whole body! Was he not following the lead of actual observation, that resulted in discovering the facts known of them to-day. While the dead human body was sacred from dissection; the circulation of the blood unknown; nor any distinction of nerve or tendon known, to give inductive association to the brain's great office; was he not justified in his conclusion regarding it?

Set us back to where there was no known physiology and only a few errors in anatomy known, and we would stand as pigmies before this primeval giant. It is easy enough to climb to the top of a mountain and view the surrounding country, but it would be an immense work to make the mountain.

Hippocrates abjured speculation where investigation could not follow. For then as now medicine had its spring, summer, and autumnal styles of fashion, that kept in with the ebb and flow of passion or pastime as well as theory. But speculation had just then expended itself in fruitless theories. Socrates was just spreading his fame to the ends of the earth by exploding the air-castles of the sophists. The Pythagorean school had only a few years been dispersed; its false doctrines going with it, however pure its practices.

Thus it might seem, thought and action were comporting themselves to the realities of practice, as if the earth were stilling itself for the advent of christianity, so soon to follow.

Aristotle, the pupil of Plato, known as the greatest philosopher of ancient times, inherited the practice of medicine from his father. He never laid much other claim to it. But from the teachings of Plato made exceptions, and followed the dictates of the great school of nature as illustrated by Hippocrates. He pursued the study of physiology, materia medica and botany; and led the teachings of his day into the habit of demonstrating their theories of nature. He was the preceptor of Alexander the great. And was instrumental in establishing the Alexandrian school in Egypt where the great library was finally collected.

This school was formed, says the historian "to comment upon and grammatically explain the writings of Plato and Aristotle." Thus it was supposed these great minds had consumed all that was known, and a proper understanding of them only, was all that was necessary. But the wars between Rome and Carthage gave the Ptolemies of Egypt abundant opportunity in their already ambitious direction; and their undisturbed autocracy built libraries only as their ancestors built pyramids, such as had never been known. While Hannibal and Scipio were contending for the supremacy of the sword, Egypt was renewing her ancient renown as the empire of letters. Here medical men set down to the earnest work of investigation; and for the first time in the history of the world, human dissections were allowed and practiced. But very little of this labor remained after the libraries were consumed to tell whether it had been fruitful or not. That it disseminated a large amount of information already acquired, may be inferred, from the long line of learned Arabs that continued of note in history. But that anything new was discovered, or any new purpose for an old discovery, has not transpired.

Galen was born in Asia, and died there too, but was the greatest physician ancient Rome produced; he lived within the history of the Alexandrian library, but it is not recorded that he ever set foot on the soil of Egypt, much less to have touched a book of the library. His statement that he dissected only animals verifies it. He recommended his students to go there where they might dissect the human body. But Rome did not take to physic readily. Pliny says it was six-hundred years without a physician! That the Romans trusted to superstitious ritse, such as the Dictator driving a nail into the capital, with incantations, and the celebration of public games. So that Galen must have found poor encouragement in his advancement, and that it is not improbable he spent most of his life, in what would be now termed missionary medicine. Not only in introducing first principles, but laboring to get an acceptance of his his art. Rome with all her greatness, in her halcyon days, was not civilized. Look at her Olympian games; her scenes of triumph and festivity; where the death of an individual or a beast was the culminating zest; her gladiatorial exhibits; scenes from acts within the Coliseum, and think of what use a physician or surgeon would be there. Prodigality of life and contempt for death will not encourage the healing art.

The decline and fall of the Roman empire, with the succession of Dark Ages is not so readily accounted for; though many theories by many learned men have vouched many explanations. That the first impressions of christianity should be marked by a decline in human intelligence, does not compare with our estimates of its influence in later days. This fact could not have failed to furnish the reflective associations that made Gibbon and Hume the skeptics they were.

But medicine, whether of science or art, dogma or empiricism, cabilistic or rational, dragged its huge, though may be unseemly proportions, downward and upward, through this blackness, until light emitted its first rays at Padua in the discoveries of Vesalius.

The art of printing now soon spread the culture of new ideas, and men of force came readily into the arena of letters; while criticism, of that crushing character that meant to destroy, was met with a resistance in kind; and changes though rude were rapid. A few of the particulars of that day may not be without interest, given in the words of one whose writings stand unique, as free from party and may be passion. Michael De Montaigue, whose life stood between the birth of Vesalius and the death of Harvey, says: "It is possible that I may have derived my antipathy to physic from my ancestors; but had there been no other consideration in the case, I should have endeavored to overcome it; for all those conditions that spring in us without a reason are vicious; and is a kind of disease we are to wrestle with; for I hate the consideration of refusing physic for its nauseous taste; thinking health worth purchasing, by all the most painful cauteries and incisions that can be applied; and according to Epicurus, I conceive that pleasures are to be avoided if greater pains be the consequence. I do not deny but there may be some art, and that there are among us so many works of nature, things proper for the conservation of health; that is most certain. I very well know that there are some simples that moisten and some that dry; I experimentally know that radishes are windy and senna leaves purging. But the Arcadians cured all manner of disease with the milk of a cow. And Herodotus says: the Libians enjoyed a rare health, by a custom they had, after their children had arrived at four years of age, to burn and cauterize the veins of their heads and temples, by which means they cut off all defluxions and rheums for their whole lives. And the country people of our province make use of nothing in all sorts of distempers, but the strongest wine they can get, mixed with a great deal of saffron and spices, and all with the same success. Then he says: "It is the rule of physicians, which accompanies all other vain fantastic and supernatural arts, that the patients belief should prepossess them with good hope and assurance of their operation; as if they held it as a rule that the most inexpert and ignorant physician is more proper for a patient that has confidence in him, than the most learned and experienced that he is not acquainted with. Even the choice of their drugs is in some sort mysterious and quackish; they take the left foot of a tortoise, the liver of a mole, blood drawn from under the white wing of a pigeon. Then there must be an odd number to their pills; the appointment of certain days and feasts of the year; the superstitious gathering of their simples at certain hours; they carry that austere grim countenance, and haughty bearing that Pliny derides. And yet for all that there is a certain weakness in their arguments and divinations, shown by the sharpness of their disputes, full of hatred and jealousy, to be discovered by any one, that a man must be blind not to discern that he runs a very great hazard in their hands. Whoever says one physician uses anothers prescription, without taking something away, or adding something to it. How often do we see them impute the death of their patients to one another. Moreover, their authors hold that there is no physic but has something hurtful in it; then how much more hurtful when misapplied. Of so many physicians how few take upon themselves to record their experiments, and thus it might be that all others are having contrary experiences, and instead of facts fallacies are promulgated. This is a criticism two-hundred years old and is about as fair as we are likely to get now. This is what we have to depend on as a reflexion of our work. The common practice of building up an argument from the worst principles of an unmitigated error, and sending it forth as a fair representation of practices under controversy, makes this statement seem like moderation and discretion. So that we might as well take it at the hazard of odds, and reckon it a corrollary of the shoals and quicksands our medical craft has steered by; and though many of our boats still flounder among them, may we not erect landmarks of industry and buoys of honesty about them, that even the wayward may be able to heed; and the quack and the juggler be known, as they ought, by their position and practices.

A medical education will not wipe out all the dross of a sordid character, nor brush away the cobwebs of an early imbibed superstition. And while our bright evening hearths have their principle attraction in the rehearsal of weird tales, and the formation of "dark circles," the germ will ever thus be planted, that bears the charlatan his food and the mounte-bank his money.

From Vesalius we step to Harvey where the Rubicon of medical science was crossed; where the fettering shackles of the unknown were loosened, and the wide expanse of fresh fields was spread to the husbandman of science. The discovery of the circulation of the blood by Harvey was to medicine, what the advent of steam was to manufactures and navigation. Though not completed by him only in theory, every inquiry in that direction further demonstrated it, until Malpighi showed the course of the blood in the vessels; and after a lapse of seventy years Leeuwenhock demonstrated its circulation through the minutest capillaries. The theory of respiration soon followed.

The value of this discovery cannot well be appreciated unless we could place ourselves back to that point. Yet some of its phenomina which we might think well nigh hidden, for want of it, were matters of common observation. And this circumstance has marked many of the discoveries in science. Such as the calculations of the astronomer from the observation of stellar bodies in motion at certain points; that cause of disturbance must exist, and the revelation of a new world is the result.

And such is the proneness of man to watch these indices, that in his haste to discover, frequently is found practicing from an index that has no attractive force, save in his imagination. The theories of Brown, long since submitted to quiet sepulture; and that of Hahnemann in its indivisible last potency of ghostliness, that still hangs to the ragged edge of its fate, are those of most notoriety. And yet while hurling a trite epithet at these gregarious hallucinations, we must recollect that they have been and are the *vis a tergo* of some of the best conceptions in practice; as a negative, that like the current of electricity when broken by a discharger, causes the truth to sparkle.

More than a hundred years had elapsed, from the discovery of the circulation of the blood and its verification when Jenner announced that the small-pox, whose ravages had been the scourge of time, was to be mitigated and possibly stamped out. Fifty-eight years have now gone by, and the means though ample have not brought the end. The cry of science is still heard, like Rachel in the desert, that her nurslings are smothered, and small-pox stalks grim and dire through the land. Legislatures have to be patted on the head, and the "dear people" seen to first; a vote always being more important than a life.

The great good to be derived from communities is the mutual support and protection of each individual; and this can only be rendered efficient by turning the whole mass into one vast force toward a special point, taking the ills and hindrances of life *seriatim*, move them from their resting places.

Anæsthesia next in the cronology of success needs no eulogy. The cruelties of surgery, so long the horror of professional life, has failed before it like the mists of the morning. One well and thoroughly long drawn sniff of chloroform, settles all dispute of its efficacy. No select committee of special charities to establish this.

And now, we have come together in the name of all that is good and great: bartering the gold dust of thought for the purple and fine linen of acquisition, let us put our frail fagots into a bundle that each one may bear away with him a shaft of light.

Art. 2.—The Treatment of Acute Rheumatism.

Read before the Alumni Association of the Miami Medical College, December 29th. 1876,

By I. C. MILLER, M. D.

Mr. President and Gentlemen: Acute articular rheumatism is one of those affections that has baffled the resources of ancient, mediæval, and modern times. No single drug, or combination of any of the articles of the Materia Medica, has as yet been able to successfully cope with this acutely painful malady.

The disease is characterized by moderate fever, the temperature vacillating between 100° and 110° Fahr., by pain of variable intensity, by heat, swelling and redness of the affected parts. Fibrous tissues, aponeuroses, and joints, are more especially involved, though we do not know the reason of this preference. Travelling from one joint to another within the limits of a few hours, it is marked by no regularity of appearance, although as a rule corresponding joints are successively attacked. Sweating is a characteristic feature, and together with the loss of sleep occasioned by severe pain, is one of the chief debilitating causes in this affection. There is an inherent tendency during an attack of rheumatism for certain structures of the heart, the endocardium and less frequently the pericardium to be invaded, and this is more apt to happen in the early and middle periods than in the latter ones. If the disease be allowed to pursue an uninterrupted course it is found to be self-limited, and though painful is not dangerous, unless a complicating endocarditis or pericarditis supervene, concerning the pathology of the affection but little definite is known.

It is supposed by some that uric acid is the deleterious agent, others lay the blame on lactic acid, while others state that neither the one nor the other is the cause, but something else of the nature of which we are not cognizant. Uncertain as we find the views to be regarding its pathology, it is but reasonable to expect to obtain few settled opinions relating to its proper mode of treatment. Like the disease the treatment stays not but is ever moving.

First on this plan, then on that; now with this drug, then with some other new lauded and valuable discovery the medical practitioner goes plodding on, while baffling them all, the disease pursues its own resistless way, and in spite of physic bids defiance to such ill-directed attempts at medication, based on theory and empiricism.

Let us cast a retrospective glance over various plans of treatment that have been employed and briefly notice present methods. Bleeding had its advocates in Sydenham and Cullen, and these not content with one full blood-letting, advised repeated renewals of the operation. This plan of treatment is well illustrated by the following quotation from the work of a distinguished physician, who at that time occupied the chair of theory and practice, in the College of Physicians and Surgeons of the University of the State of New York. Venesection, general, repeated three or four times. As Dr. Gregory used to remark there is very little danger as it regards the patient's life, but he is in great danger of losing the use of his limbs, if you do not cut off the flow of blood to the inflamed part. Gregory's bleedings were to small, viz: about ℥xij "hence he found it necessary to repeat them, locally by leeches—cupping repeated, not regarding the buffy coat, for the buffy coat exists in the last stage as well as the first." This surely one would have thought should have sufficed to subdue the rheumatic inflammation, but no, for Dr. Gregory in his work observes after he has drawn ℥xvi of blood and repeated it two days afterwards, if the pain continues urgent, that the further treatment of the disease may commonly be entrusted to purgatives, antimony and nitre.

Mercurials until lately were also much employed, especially calomel and opium in combination, and the "power of the two in repressing acute rheumatic inflammation" was said to be unquestionably very great.

Tartar emetic has had its advocates amongst distinguished men, but it is insufficient to cause a rapid and safe cure. On this point Dr. Fuller says: "In the young the active and plethoric in whom it serves to obviate the necessity for bleeding and other antiphlogistic measures, it may be employed in conjunction with remedies having more decided curative properties; but to the more weakly, and to those whose symptoms are less acute, it often proves extremely depressing; and as it is unnecessary for the relief of the local inflammation, recourse should seldom be had to its administration.

Colchicum has also had supporters, but its value has been certainly over-estimated, and the following, from the article by Garrod in Reynold's system of Medicine, shows its true value: "as the result of my own experience I may state, that colchicum possesses no influence in checking the progress of rheumatic fever; that when given in large doses, so as to lower the tone of the vascular system, it affords temporary ease, but not more than any other vascular depressent; and furthermore, that the colchicum is a dangerous drug in many cases, as it acts as a direct cardiac sedative, and the chief danger to be feared in acute rheumatism is the loss of power of the heart."

Nitrate of potash was advocated by Dr. Brocklesby in 1764, who employed from ʒx to ℥ij daily. This plan however did not meet much favor until 1839 when it was again revived by the French school of Medicine. Dr. Bashon deducted as the result of a series of experiments the following conclusions; 1st. that it is a most valuable and efficacious remedy in rheumatism when given in doses of ℥ij to ℥viij in Oiv of barley water daily; 2nd, that it acts by restoring the saline constituents of the blood and by lessening the excess of fibrin. 3rd. that there is a certain amount of exemption from cardiac complication, and that cardiac inflammation when it supervenes is more amenable to remedies. 4th. that the tendency to collapse is much diminished, and the acute or inflammatory symptoms usually give way on the third or fourth day.

Dr. Fuller on the other hand, considers the beneficial results obtained to be due more to the power the drug has in lessening the tendency to complications, than to any curative property it possesses. Locally it often affords great relief. The alkaline plan of treatment at the present day seems to find much professional favor. This plan consists, as its advocate Dr. Garrod tells us, in administering a dilute solution of bicarbonate of potash in about 30 grs. dose, every four hours, until the joint symptoms and febrile disturbance have completely disappeared. "Upon the heart the alkaline bicarbonate acts as a sedative reducing the frequency of the pulse to 48 beats in the minute, but not causing any faintness." These then until within the past year or so, were the best known and almost the only plans adopted.

But, a drug occupying an insignificant amount of space in the Materia Medica, and thought but little of by the general mass of the profession, together with a newly discovered acid obtained through its decomposition, has at once as it were sprung into repute as a specific for the relief and cure of rheumatism. Reference is made to salicin and salicylic acid. Salicin is prepared according to Parrish, "by making a decoction of willow bark, which is evaporated to three times the weight of the bark employed, digested with oxide of lead, and the filtrate evaporated to a syrupy consistence. After several days the crystals are separated and purified by re-crystallization. Concentrated so, colors it blood-red, water decolorizes it again dissolving a peculiar acid (rubri-sulphuric.)

If salacin is heated with very dilute $N\,O_5$ just to the boiling point and allowed to cool, or evaporated at a low temperature, salicylous acid is separated. This is difficult to convert into salicylic acid. The latter is best prepared by the following process of Piria, Gerhardt and Marchand:—Caustic potash is fused in a silver dish, and to the liquid alkali, salicin is added in small portions at a time constantly stirring. The mass turns brown, swells and gives off hydrogen. The heat is continued as long as gas is produced in the presence of excess of alkali. If the process have been rightly conducted the mass is nearly white having only a slight yellow tinge. The fused mass after solidification is dissolved in cold water, the solution super-saturated with hydro-chloric acid, the vessel being surrounded with cold water during this part of the operation and the resulting mass of crystals separated from the mother liquid and washed with cold water." The acid is also obtained from the volatile oil of spira ulmaria by oxidizing with bichromate of potash and sulphuric acid. It is in white and glistening needle-shaped crystals, not very soluble in cold water, but in glycerine, the sodium salts, and hot water freely, and in alcohol, chloroform, ether, essential and fatty oils more or less so. It fuses at a heat a little below 159° C., and sublimes at 206° C., but at a higher temperature is resolved into carbolic and carbonic acids. It causes in some cases when administered, heat and dryness of the fauces, and when given in large doses tinnitus aurium and deafness. It increases the capillary circulation, and in some persons creates an itching sensation of the skin. It induces perspiration also, and probably by its antiseptic properties modifies or destroys the rheumatic poison, —of the cause of this poison and of its nature we know nothing—all that seems to be proved is, that the salicin and salicylic acid in adequate doses exerts a marked and controlling influence over the fever, (and in fact they both do so in all fevers) heat, swelling and pain of acute rheumatism, and that as a rule after 48 hours administration, the temperature declines, the tongue cleans, the appetite returns, and the patient enters upon a full convalescence. Though salicin and salicylic acid may prove to be what is claimed for them, viz: specifics for acute rheumatism and antipyretics, yet time may show, that like all other remedies, while they may be useful in some cases, in others they will be inert, and in still others positively injurious.

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Art. 3.—Case Illustrating the Influence of the Imagination upon the Voluntary Muscles.

BY W. H. DEWITT, M. D., Physician at Longview Asylum.

Elizabeth C—,native of Ohio, aged 27 years, single, occupation, none.

The following history was obtained from the patient and her relatives. A maternal uncle and an aunt are insane; a brother died of epilepsy at the age of 35. The patient has been an invalid for five years, has only occasionally been out of bed, and during the five years has not walked a step, or borne a pound of weight upon her limbs.

She is a woman of ordinary height, poorly nourished, anæmic, tissues soft and flabby. Light complexion, light hair and blue eyes, upon the whole, rather attractive in appearance. No preternatural heat of the body, pulse frequent and irritable; respirations, 22 per minute, tongue frosted, bowels constipated.

The theme of her conversation is upon matters relating to herself and religion. She converses in a most positive, audible tone of voice. Her delusions are of the following character. She firmly believes that she is influenced and governed by some supernatural power, and that her actions are created and controlled by this power. She also imagines that she is suffering from a great variety of physical disorders, such as spinal disease, uterine trouble. etc., in fact there is scarcely a disease in the medical vocabulary, from which she has not suffered. She affirms that she is not to walk until a higher power than man, commands it. Her affections have been placed upon her for a wise purpose, to chasten her, and when their mission is fulfilled, she will astonish the whole civilized world by her marvelous works. She is a most firm believer in miracles, and affirms one will be wrought upon her.

A most careful examination of her body revealed nothing unusual, or of a special abnormal character, absence of both spinal or uterine disease. The muscles of the body have become somewhat atrophied and weakened, more especially those of the lower limbs no doubt the result of disease. She has not however, lost the use of any portions of the body, changes her position in bed without assistance, uses her arms and legs with perfect freedom. There seems to be no muscular inhibition worth speaking of, but simply a lack of force or vigor, brought about by want of exercise. The interrupted or faradaic current applied to the extremities produced electro-muscular contraction.

Believing that the inability to walk was in a great measure imaginary and feeling fully satisfied that there were no physical causes operating to prevent the use of her limbs, I resolved to resort to some stratagem, knowing that her credulity would permit of any amount of imposition being practiced. As before stated she had long been impressed with the belief that her physical ailments were to be removed by divine interposition, or in her words the Almighty would restore her to perfect physical health and at the same time *command* her to walk. Acting upon the supposition that she was led to believe, that it had been revealed in a dream, that on the night of the 23rd of the eighth month (August) the manifestations of divine power, she had so long expected, would be made. In pursuance of the above all the necessary preparations were made to have a first-class miracle. A tube of considerable length was procured, also materials for lighting up her room. Her faith seemed strong, in the truth of the dream and she awaited the 23rd, with visible anticipation. The proper time having arrived the tube was introduced through the window of her room, as nearly over the head of her bed as possible and the following words enunciated in a solemn and impressive tone— Elizabeth, daughter of Rebecca, the spirit speaketh unto thee. Thou hast suffered these many years. For my sake, thou hast been patient, and now thy *faith* shall make thee whole. Thou hast a great and good work to accomplish. I therefore command thee, to walk. From this time forth thou shalt be my servant. Withdrawing the tube, the room was at once illuminated in a most brilliant and dazzling manner. It need only be said that the stratagem worked well. She was found by the night watch walking about her room in a most happy frame of mind, was fully satisfied with the genuineness of the miracle, but believed that others would be performed at no distant time.

From this time forward, up to present date (January 19th,) she has been walking with the aid of a cane. Her general health has improved very much, her limbs have increased in size and grown comparatively quite strong. She is still at times exceedingly nervous and hysterical. Her mental condition has improved some, she still however has delusions, thinks that all has not been done for her that will be done and is looking forward to other manifestations.

This case clearly illustrates the powerful influence of imagination over the voluntary muscles. The young woman labored under the belief for five years that she could not walk. The belief was created, no doubt, and perpetuated by the delusion that she could not walk until commanded to do so. There are two reasons given by Dr. Carpenter by which actions may become impossible, that under ordinary circumstances are performed with ease. First, if a man's mind be entirely possessed with the idea of its *impossibility*, or secondly, if, while his judgment entertains doubts of success, his attention be distracted by a variety of objects, so that he cannot bring it to bear upon the one effort which may alone be needed. In this particular instance, as in the first example, the mind was no doubt imbued with its impossibility and therefore no effort was made to use the limbs as a means of support to the body.

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Art. 4.—A Glance at some of the Contributions of America to the Science of Medicine, from 1776 to 1876.

By W. H. Falls, M. D., Cincinnati, O.

Read before the Alumni Association of the Miami Medical Association. Dec. 29th, 1876

Mr. President and Members of the Alumni:

In place of reading a dissertation on some one subject in medicine, it occurred to me that it would probably be of more interest to call your attention, in this the "Centennial" year, to some of the advancements, that have been made by America, in the science of medicine during the past one-hundred years.

The century just closing, is as memorable in the annals of medicine as to the present progress that has been made, as are any of its predecessors; and in many respects more so, as many of the discoveries that have been made, and theories advanced and proved are of incalculable benefit to the profession and humanity.

When we look back upon the pages of Medical History, and compare the present with the past, we are then made cognizant of the progress she has made. At no time, but the present, in her proved and memorable history have her pages appeared brighter or more highly illumined. And it seems that even now it is impossible, that the future could add anything that would make her history more complete.

She proudly receives the homage a grateful and loving mankind are offering to her; and in return bestows her blessings upon them with liberal hands.

It is not my intention to review the progress of medicine in general but to glance at some of the contributions that America has made to medicine during the century now closing. Her gifts have been many and of great value; and in comparison with those of other countries are most highly creditable to her.

The most important event which has occurred was the discovery of Modern Anærthesia. It was discovered on December 11th, 1844, by an obscure dentist, whose memory has been neglected and whose name has been almost forgotten; but to whom this honor is undoubtedly due, Dr. Horace Wells, of Hartford, Conn. He first made the suggestion and applied the test in his own person, by rendering himself unconscious by breathing nitrous oxide gas, and in that condition had a tooth extracted without pain. Painless operations continued to be performed with nitrous oxide gas (except once, when ether was used) by himself and friends in Hartford until his death.

On Sept. 30th, 1846, Dr. W. T. G. Morton, of Boston, a former pupil of Dr. Wells, introduced the practice of anæsthesia by sulphuric ether, and from thence, it became known to the world. Chloroform was discovered by Samuel Gutherie, of Sackett's Harbor, N.Y., in 1831 and its anæsthetic properties were discovered by Simpson, of Edinburgh in 1847. Prior to the discovery of modern anæsthesia what must have been the sufferings humanity were called upon to bear while undergoing surgical and other treatment? To Prevent and alleviate suffering in all of its forms is the duty of the physician; and how thankful we the profession, should be that this priceless gift (and it seems as though it had been inspired) has been given to us. Let us imagine we see pictured the scene of a surgical operation before its discovery, such as an amputation of a leg. The patient is half narcotized by opium, whiskey or other narcotics, or perhaps perfectly sensible and restrained by force. The operator and assistants distracted by the groans and struggles of the patient, and amid a continuous stage of excitement and anxiety the operation takes place. If the patient is sensible he sees the glittering steel piercing his flesh—the blood flowing from his wounds, hears the saw as it traverses the bones—the snapping of bone forceps and other instruments, and the remaining steps of the operation while he is powerless and suffering tortures indescribable. But we recoil with horror from such a scene and look upon the same operation as performed to-day. The patient under the influence of the anæsthetic is asleep and entirely unconscious of what is taking place. Perfectly motionless and under the complete control of the operator. The anæsthetizer conscious of the responsibility of the life in his hands, guards and prolongs the influence of the anæsthetic. The operator and assistants calm and collected, performing their duties with precision and deliberation, the solemn silence often remaining unbroken except by the commands of the operator, or the sounds produced by the instruments as they are made to perform their work. The operation is completed and the patient awakes from a pleasant sleep—perchance a fairy dream, and receives the congratulations of surgeon and friends. In regard to the safety of anæsthesia in operations, the risks are no greater and not so great as they would be without its use. The patient is relieved from pain, the shock of the operation rendered less, and the chances of recovery are increased. Statistics are at variance in reference to the mortality following operations since the use of anæsthetics. Prof. Simpson maintained that it has been diminished, and Dr. Arnott that it has been increased. If the death rate following operations be on the increase, as Dr. Arnott states, it must not be attributed to anæsthesia but to other sources—pyæmia, exhaustion, hemorrhage, or the previous disease or injury being among the principal ones. We must also bear in mind that many of the operations that were rarely performed and those which were not attempted before its discovery have since become more general. The only method by which we can arrive at a correct estimate as to its influence in the mortality and results of operations, is by comparing the same classes of operations before and since its discovery. Amputations with amputations, etc. Under the influence of anæsthesia, with what facility dislocations are reduced. Fractures dressed and the various surgical operations performed. As an aid to diagnosis it is second to none; many obscure diseases are rendered positive by its use; and surgery has been rendered more safe and scientific by its discovery. If no other event had occurred in the past century of American medicine but the discovery of anæsthesia, it alone would be glory enough for it and centuries to come. The prevention and relief from human suffering which has resulted from its discovery cannot be imagined, let alone being estimated. To-day over the entire universe heartfelt thanks are rendered to God for the greatest boon ever given to mankind. With what national pride do we as Americans claim this as our discovery, and triumph in its success? Succeeding generations shall add new honors to America for the discovery of anæsthesia; and the names of Wells, Morton, Gutherie and Simpson will ever be engraved in the hearts of the recipients of their benefactions, and be enshrined with living immortals as long as the world shall remain.

Practical medicine, although not claiming to have made as many advancements as some of the other branches of the science of medicine, has nevertheless made much progress. Many new theories in the diagnosis and treatment of diseases have been advanced in our own country and also in foreign countries, which the profession have been quick to investigate and pronounce in favor of, or against. The results thus obtained have had much to do in destroying old doctrines and establishing new ones.

Dr. Nathan Smith in his essay on Typhus Fever, published in 1824 first pointed out the self-limitation of that disease. Typhus and typhoid fever were at that time confounded together; but from his essay we are led to believe that what he called typhus was really typhoid fever. His method of treating the disease with the milk treatment fifty years ago, has in the past few years been loudly advocated in Germany and England.

We are indebted to Dr. Gerhard, of Philadelphia for investigating and discriminating the essential differences between typhus and typhoid fever. He also made the discovery that hydrocephalus was the effect and not the cause of a disease, and showed the essential connections between it and tubercular disease of the meniges of the brain. Dr. James Jackson, Jr., of Boston, whose early death was greatly lamented, in a paper written by him in 1833 first called attention to the prolonged expiratory sound, as an important feature in bronchial respiration and as a prominent physical sign in the first stage of phthisis. The important observations of Drs. J. M. DaCosta and Austin Flint in regard to the physical signs and differential diagnosis of certain diseases of the chest, have enabled us to recognize those diseases with more certainty, and have gained the observers an honorable reputation both national and foreign. From the observations of Drs. Ware, Kuhn, Jacob Bigelow, Austin Flint and others we have been enabled to recognize the self-limitation of many diseases, and the catalogue is constantly being increased. Where we formerly resorted to heroic measures to arrest diseases, we now endeavor to retain them in their natural courses and to assist nature in her work of repair and recovery.

Public hygiene and sanitary science have received much encouragement in this country from the public as well as the profession and are daily increasing in importance. The golden maxim of Franklin that, "Public Health is Public Wealth" is now seen to be obviously true in all communities. Boards of health have been established and strict sanitary laws enacted in cities and towns; and through them much has been done to prevent and mitigate diseases. The tabular statistics which have been compiled by sanitarians have increased our knowledge of the death rate and of longevity; and also of climatic diseases and of the influence of climate in the production as well as in the prevention and cure of diseases. Dr. Bowditch, of Boston, has given much time and labor in investigations as to the influence of soil-moisture in the production of phthisis, and from his observations he reaches the conclusions—that "a residence in or near a damp soil—the dampness being inherent, or percolated, is one of the primal causes of consumption in certain parts of our country, and that it can be checked in its career and probably prevented by attention to this law." It is now an established fact that a residence in a high altitude as in Colorado and Minnesota will have much to do in preventing and curing some of the diseases of the respiratory organs. Sufferers from asthma have been entirely relieved and many cases of phthisis benefited, and some have recovered by changing their residences to those climates.

Life insurance has received considerable attention from the profession in America. Dr. J. A. Allen, of New York is prominently known for his labors in its behalf. His work on "Medical Examinations for Life Insurance," is recognized as one of the best works on the subject and does great credit to its author. It has been frequently refered to by our foreign brethren and spoken of in terms of the highest commendation. Skilful medical advice constitutes an important element in the consideration of a proposal for life insurance, and as every medical man, in the course of his professional career, at the present day is more or less frequently brought into contact with insurance business, its importance to the profession is obvious to all. It may not be inopportune to state that the Miami Medical College was the first medical institution in the United States to include lectures on Sanitary Science and Life Insurance as a part of the regular course of lectures. Medical thermometry during the past few years has become of great importance. To Wunderlich, of Germany is the honor due of bringing it so prominently before the profession, but in our own land Dr. E. Seguin, of New York is entitled to much credit for his careful and elaborate researches in this department. Every thorough physician now considers his thermometer of as much importance as a surgeon does his pocket case—as by its use he is better enabled to diagnose and prognosticate diseases. The physiological experiments of Dr. Beaumont on gastric digestion; Prof. J. C. Dalton, on the glycogenic function of the liver; and Dr. Austin Flint Jr., on cholesterine have rendered important results to practical medicine. How little was known of gastric digestion before the experiments of Dr. Beaumont, on Alexis St. Martin, in 1822; and what a new field was then opened to physiologists and what valuable results have since been obtained.

Electro-physiology and Electro-therapeutics have received considerable attention in this country. The labors of Drs. C. E. Morgan, S. W. Mitchell, Hammond, Beard and Rockwell in this department are well known: and the results they have attained are of great scientific value. The scientific application of electricity for medical purposes are daily becoming more recognized as being among the most important of our remedial agents. The labors and contributions of such illustrious men as Drs. Rush, Bard, Eberle, Drake, Joseph Hartshorne, Nathaniel Chapman, Robley Dunglison, Geo. B. Wood, J. F. Meigs and many others are eminently worthy of notice and entitled to grateful remembrance, but time will not permit me to speak of them. Their names will be cherished with veneration and esteem, and be handed down to posterity for their valuable services in the cause of practical medicine.

"The praises of surgery have been sung in poetry and heralded in prose the world over," while the achievements of American surgery have contributed in no small degree to its advancement.

The illustrious surgeons of the early part of the century were Drs. John Warren, Philip Syng Physick, Valentine Mott, John C. Warren and Benjamin W. Dudley and to them we are much indebted for the rise and progress of American surgery.

Dr. John Warren in 1783 was appointed Professor of Anatomy and Surgery in the newly established medical school at Cambridge (now Harvard University), an instance of the energy of character is found in his preparing a course of lectures on anatomy without books, without an instructor, and without a model. In 1804 he performed the first operation for extirpation of the parotid gland. He was the first operator in this country to amputate the arm at the shoulder-joint. The operation being performed in 1781. He introduced the healing of wounds by first intention, long before it was practiced on the Continent of Europe. Philip Syng Physick, who has been titled the "Father of American Surgery," was distinguished as a teacher and an operator. He was exceedingly popular as a lecturer, and as a practical surgeon had no rival in the United States. Having been a pupil of Sir John Hunter, and afterwards his assistant, his opportunities for observation and experience were very many. He was greatly interested in the doctrines of Sir John Hunter and in promulgating them in this country. The greatest operation he performed and one which contributed to giving him a pre-eminence among American surgeons, was that of lithotomy upon chief justice Marshall, from whom he removed nearly one thousand calculi. In the early part of the nineteenth century he gave the first accurate account of the affection of the bowel known as the cystic or sacculated rectum. His communications to medical journals were valuable, but aside from these, he left no records of his vast experience. Many who have won for themselves a name in the annals of fame, have had to encounter many obstacles and discouragements, and it would seem that they are an indispensable condition for success. Such a person was Dr. Physick, as his own language will attest, he says: "I walked the pavements of Philadelphia after my return from Europe for nearly three years, without making as much by my practice as put soles on my shoes, and such were my discouragements ond dissatisfaction, that I would have sold the fee simple of my profession for a thousand pounds, and never again felt a pulse in the capacity of a physician. Dr. Valentine Mott, in May, 1818 performed the first operation of ligating the innominate artery, the operation being performed for aneurism of the right subclavian artery—the patient surviving for twenty-six days. This operation has been performed seventeen times, and in only one instance successfully, and on that occasion, which occurred in 1864—Dr. A. W. Smythe, of New Orleans was the operator. One of the greatest operations performed by Dr. Mott, was the exsection of the entire right clavicle for malignant disease of that bone, forty ligatures being required. He asserted that this is the most dangerous and difficult operation that can be performed on the human body. Dr. Mott was the first to tie the primitive iliac artery for aneurism. On Nov. 19th, 1821, he made the first exsection of the lower jaw for necrosis. The employment of the curvilinear incision for excision of the joints and jaws, and the extirpation of tumors originated with him. Sir Astley Cooper said: "Dr. Mott has performed more of the great operations than any man living, or that ever did live." Dr. John C. Warren is intimately associated with the early history of modern anæsthesia, as he was the first to administer ether as an anæsthetic in a surgical operation, and his sanction aided in its introduction. Dr. Benjamin W. Dudley was a skilful and daring surgeon, and as a lithotomist has never been equaled in America. It is stated that out of two-hundred and seven operations of lithotomy which he performed he lost only six—a success unparalleled in the history of lithotomy. The application of the trephine for the relief of inflammation and abscess of bone originated with Prof. Nathan Smith, of New Haven, and not with Sir Benjamim Brodie as is generally ascribed. Prof. Smith's operation was performed in 1798 while Sir Benjamin's did not take place until March, 1828. Dr. Amos Twitchell, of New Hampshire in 1807, successfully ligated the primitive carotid artery for secondary hæmorrhage, the operation being performed eight months prior to the celebrated case of Sir Astley Cooper The name of Dr. Ephriam McDowell of Kentucky, is prominent on the scroll of surgical honor, as the originator of ovariotomy. His first operation was performed in December 1809, and was afterwards performed by him eleven times. Ovariotomy was for a long time condemned as an unjustifiable procedure, and it is only of a short period that it has been regarded as a legitimate resource of surgery. The prominent ovariotomists in this country have been Drs. W. L. and J. L. Atlee, Kimball, Dunlap, Peaslee and Thomas. Double ovariotomy was first performed by Dr. J. L. Atlee in 1843; and has been since repeated by several surgeons. Prof. W. H. Mussey of this city on May 17th, 1867. performed this operation. The patient recovered and is still living. The result of this operation bears ample testimony to his skill and judgment as an operator. The first operation on record of excision of the lower jaw was made by Dr. Deadrick, of Tenn., in 1810. Dr. Wm. Gibson, of Baltimore in 1812, first applied a ligature to the common iliac artery, on accouut of a gun-shot injury. The first operation for removal of the upper jaw was performed by Dr. H. G. Jameson, of Baltimore in 1820. Excision of the coccyx for coccyodynia was primeval with Dr. J. C. Nott, of Mobile, and first performed by him in 1832. Dr. J. Rhea Barton, of Philadelphia, in May, 1835, first devised and executed the operation of excision for bony archylosis of the knee joint. Dr. Gurdon Buck, of New York has modified the operation somewhat, but that of Barton is generally performed.

Dr. Reuben Dimond Mussey the founder of the Miami Medical College, and its first Professor of Surgery, was one of the most distinguished surgeons that America has ever produced. He was an excellent diagnostician, an able operator and an instructive teacher; and was loved by all who knew him for his noble and manly character. His career was a useful and brilliant one, and his reputation as a surgeon was as well known across the Atlantic as at home. Dr. Mussey was born in Rockingham county, New Hampshire, on June 23rd, 1780. He graduated from Dartmouth College in 1803, and then commenced the study of medicine with Dr. Nathan Smith and took his degree in the Medical Department of Dartmouth in 1805. He subsequently graduated at the University of Pennsylvania in 1809. He was Professor of Theory and Practice of Medicine at Dartmouth College from 1814 to 1819, and of Anatomy and Surgery until 1838, when he removed to Cincinnati and became Professor of Surgery in the Ohio Medical College. He resigned his chair in that institution in 1852, and founded the Miami Medical College. He, taking the chair of Surgery, which he occupied until 1857. About 1860 he removed to Boston, where he passed the remainder of his life, his death occurring on June 21st 1866. In 1830 he proved that intra-capsular fractures could be re-united, which Sir Astley Cooper had said was impossible. He was the first to ligate both carotid arteries. In 1837 he removed the entire scapula and clavicle, from a patient suffering from osteosarcoma, the first operation of the kind on record. In the early part of the nineteenth century, he demonstrated by experiments the capacity of the skin for absorption, which was contrary to the accepted teachings of those days, especially that of Dr. Rush. His surgical achievements present a brilliant record in American surgery; and his memory will be long cherished as a benefactor to humanity. The mantle of honor which he so gracefully wore, has been placed by the profession with becoming dignity, on the shoulders of his distinguished son Professor W. H. Mussey. Prof. Williard Parker, of New York in 1846 performed the first operation of perineal lithotomy for the relief of chronic cystitis.

Skin grafting which has become so popular in the healing of ulcers, and to which the attention of the profession has been especially called by the paper of Reverdin, of Paris published in 1869, was originally proposed by Dr. Frank H. Hamilton in 1847, and the first instance in which he consumated it was upon Horace Driscoll in the Buffalo Hospital on January 21st 1854. It is very probable that Reverdin obtained his ideas from the reports of Dr. Hamilton published on this subject. Dr. Henry G. Davis, of New York City in 1855, announced a new method of treating hip-joint disease by the portative extension apparatus, which he had devised; since then various modifications of his apparatus have been made by Drs. Bauer, Sayre, Agnew, C. F. Taylor and others. Dr. Carnochan, of N. Y. City on Oct. 16th, 1856, first removed the ganglion of Meckel for the cure of tic-douloureux, the patient being a physician from South Carolina, who submitted to the operation as a last resort for relief. The operation has been since performed by Professors Pancoast, W. H. Mussey, W. W. Dawson, Blackman, H. E. Foote and others. Out of thirteen cases that have been recorded, the pain recurred in seven. In the treatment of fractures and reduction of dislocations, American surgeons are in advance of those of other nations. The reduction of dislocations by the aid of anæsthesia; and the method of manipulation as introduced by Dr. W. W. Reid, of Rochester, N. Y., opened a new era in surgery. The pulleys, ropes, and the other frightful mechanical appliances, that were formerly used are now very rarely seen. The use of adhesive plaster as a means of extension and counter-extension in the treatment of fractures, especially those of the lower extremity, originated with the late Dr. J. K. Swift, of Easton, Pa., but was modified and popularized by Prof. Gurdon Buck, of New York City in 1861. Various kinds of splints and appliances have been invented by American surgeons for the treatment of special fractures. Many of them are indispensable and important; and enjoy a large share of professional patronage. Among some of the most important may be mentioned—Hamilton's apparatus, and Bean's interdental splint for fractured jaw – the splints of Bond & Hays for fracture of the radius, the apparatus invented by Dr. Fox and the same modified by Dr. Hamilton for fractured clavicle, the splint of Dr. Bond for fracture of the humerus. The apparatuses of Professors Gross and Buck for fracture of the femur. The "bran dressing" recommended by J. Rhea Barton, of Philadelphia for compound fracture of the leg, and the anterior splint of Prof. N. R. Smith, of Baltimore, for compound fractures of the lower extremity. Many others too numerous to mention have been devised and are of much service in the treatment of the fractures for which they are designed. To remedy the loss of parts of the body, and of symmetry and function, many useful apparatuses and appliances have been invented. Prominent among which are the artificial legs of Bly & Palmer. The artificial arm of Gildea; and the apparatus of Dr. C. F. Taylor, of New York city for spinal curvature. To Dr. Norman W. Kingsley, of New York we are indebted for the most complete artificial palate yet devised. Mr. Pollock, surgeon to St. George's Hospital, London, thus speaks of it: "I look upon it as one of a series of those very great improvements, that have come from the other side of the Atlantic, which have conferred so much benefit on mankind." Prof. E. Williams, of this city, was the first physician in the United States who made ophthalmology a specialty and from that commencement it has now come to be one of the leading specialties on this continent. Prof. Williams was the first regular lecturer on ophthalmology in this country and his lectures were delivered in the Miami Medical College, the first medical school to give instruction on this branch. Although having taken its rise in this country only half a century ago, many important contributions have been made to it by American ophthalmologists. Among them may be mentioned, the needle-knife of Dr. Isaac Hays for the comminution of cataract, the use of a suture in the cornea after the flap extraction of cataract by Dr. Henry W. Williams, of Boston, the operation of Dr. Knapp, of New York, for the removal of tumors from the optic nerve without destroying the eye; and his hook for extracting foreign bodies from the eye. And the improved ophthalmoscope of Dr. Shakespeare, of Philadelphia adapted to physiological experiments and diagnosis of diseases of the eye.

During the latter part of the eighteenth century, modern obstetrics began its progress and advancement in this country; and in the early part of the nineteenth century was joined by the sister branch gynæcology. Together they have steadily advanced until they have attained their present position of dignity and usefulness.

Dr. Wm. Pott Dewees, who might be appropriately named the "Father of American Obstetrics," did much to develop this department of medicine. By his writings on obstetrics and gynæcology he exerted a great influence and accomplished much towards elevating obstetrics to a level with practical medicine and surgery. He was the author of several valuable works, the embodiment of his large experience, and which were long recognized as the leading works on their respective subjects. His "System of Midwifery" published in 1824 passed into a twelfth edition.

The names of Drs. C. D. Meigs and Hugh L. Hodge are conspicuous in the history of American obstetrics. They devoted much time and labor to promote the cause of medicine and thus deservedly attained an eminence among the physicians of our country enjoyed by few. They were instructive teachers and contributed largely to the medical literature of their day. Dr. Meigs found time in the midst of a most arduous practice and in the discharge of his professional duties, to become the author of several medical works, the principal of which are "Woman, Her Diseases and Remedies," "The Science and Art of Obstetrics," and "The Nature and Treatment of Child-bed Fevers." He first proclaimed that cardiac thrombosis was the cause of many of the sudden deaths in childbed, and which up to that time were attributed to syncope. Dr. Hodge had a taste for surgery but was induced by Dr. Dewees to change from that specialty to obstetrics. He was afflicted with defective vision, and his great work "Principles and Practice of Obstetrics" was produced entirely by dictation. His contributions to medical literature, which were very numerous, were prized for their exactness and scientific value; of his productions the most noteworthy, are his work on "Obstetrics, Cases and Observations regarding Puerperal Fever," and "Diseases Peculiar to Women." He possessed a large share of rare mechanical genius which he rendered available for the benefit of humanity. The forceps known as the "Hodge" forceps, were of his invention and are those most generally employed in this country. The lever pessary was devised by him for the treatment of certain forms of uterine displacements. It has received innumerable modifications, but none of which are improvements on the original. He also invented a compresser cranii, a craniotomy scissors, and placental forceps, which are well adapted to the objects for which they were designed. During 1809 the greatest contribution was made to gynæcology that it has ever received—the introduction of ovariotomy by Dr. Ephraim McDowell, to which we have already referred. Dr. E. R. Peaslee, of New York in 1854 introduced the plan of intra-peritoneal injections for the treatment of septicæmia following ovariotomy; and which up to that time had been regarded as too dangerous to be attempted; but which have since been the means of saving many lives. Ergot had long been empirically employed by midwives in Germany, France and Italy for promoting the contraction of the uterus. But the attention of the profession was first called to it by Dr. Stearns, of Saratoga county, N. Y., in 1807. Its virtues were soon recognized and it is now one of the most important articles of the materia medica. It is to-day the most reliable oxytoxic among drugs that we possess, and the benefits which have resulted from its use in post partum hemorrhage are incalculable. The credit of inaugurating the teratment of simple peritonitis by opium alone is due to Prof. Alonzo Clark, of New York; who advocated this plan of treatment in 1842. In 1851—2 he called the attention of the profession to its efficacy in the treatment of puerperal peritonitis, and it is now regarded as our main reliance in the treatment of this class of cases. Dr. M. B. Wright, the veteran and distinguished obstetrician of this city, first pointed out to the profession and proved in practice the value of bimanual cephalic version. Dr. Braxton Hicks, of London has laid claim as to being the originator of this method, but the claim of Dr. Wright as to priority is so plausible that it is not to be questioned. The labors of American surgeons and gynæcologists have been chiefly instrumental in making the operative treatment of vaginal fistula successful. Especially prominent in this respect have been Drs. Hayward and Mettauer, but the crowning successes were due to Dr. Marion Sims, of New York, who by the introduction of his duck-billed speculum, his suture of annealed silver wire, and his method of operating, arrested this operation from the opprobrium of our art and made it one of its most successful procedures.

Much more might be given but sufficient has been said to show that America may well be proud of what she has accomplished for the science of medicine. We have seen that some of the most important advancements in practical medicine have been made by her physicians; and that the achievements of her surgeons have made her renowned throughout the world.

As we stand upon the threshold of the coming century, it is well for us to consider, ere we enter its portal, the high responsibility that rests upon us. The history of the coming century of American medicine is yet to be written, and we, the members of the profession of the present and future are to be the contributors. Time is to be the historian and what he shall record can never be erased. May nothing be inscribed upon those pages but what shall be to the honor, glory and dignity of medicine. We may see its title page and read its commencing chapters, but those who shall come after us will read its final one, and may they read that volume with as thankful and reverent hearts, as we do the one which has just been completed; and in the great unknown future when we shall appear for judgment before the tribunal of posterity may they be able to say of us—they did well—they honored their profession and did much to benefit mankind. The names of many both living and dead; and their valuable gifts to medicine richly merit remembrance but time will not allow of reference to them. The living do not as yet belong to history but their names are being written high upon the pinnacle of fame and they will shine as brilliant stars in the galaxy of American medicine. The dead have been enshrined in the world's proud regard and she delights to honor them; while in the hearts of the people they have an unperishable monument decked with garlands of deeds whose beauty shall never fade.

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Art. 4.—Lithotrity.

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This operation, as an accomplished fact in surgical progress, dates from 1824, when Civiale, in the presence of a special committee of the French Academy, in two sittings, crushed and removed every fragment of a stone from the bladder of a patient. It is true that Gruithausen, a Bavarian surgeon, in 1813 proposed, as a preliminary measure to the use of solvents, to seize and perforate vesical calculi by means of straight instruments; and that in 1819, Elderton, a Scotch practitioner, devised an implement shaped like a catheter and armed with files, which was designed to pulverize stones in the bladder; yet to Civiale belongs the credit not only of conceiving and developing the modern operation of lithotrity, but, as is said by Van Buren: "of effecting an undisputed cure of stone by a new operation." A substitute for lithotomy has been so much desired that surgeons, ever since the dawn of authentic history have endeavored to devise some other method of relieving patients suffering from stone in the bladder. How nearly lithotrity came to being discovered half a century before it was, is graphically delineated in the second volume of Sir Everard Home's work on the Prostate. General Martin, an officer of the British Army, stationed in India, suffered from vesical calculus, but having a horror of lithotomy, continued to suffer rather than undergo that operation. In 1775 he devised an instrument, provided with a covered rasp, which he passed along the urethral canal to the bladder, and when in contact with the stone, brought the rasp into operation in such manner that from time to time he was able to detach small fragments from the calculus. The relief that this rude operation afforded him was so great that he believed—and the belief was widely spread—he had succeeded in curing himself. However, when he died many years subsequently, his bladder was found to contain quite a quantity of stone. If we are astounded that so fruitful an experiment as this, even in the hands of a non-professional man, was permitted to pass without thorough investigation by the Faculty, we cannot wonder that the proportion of Gruithausen excited no interest. The carefully compiled history of this operation, prepared by Mr. Coulsen, shows however, that one earnest mind was patiently striving to unravel the tangled thread of vesical operative, surgery at a period long prior to that usually ascribed to his appearance in the arena of professional life. From his notes we learn that Civiale, then a poor, unknown medical student in Paris, had constructed models for certain instruments as early as 1817, and that during the year 1818, he applied to the French ministry for pecuniary aid in defraying the cost of his experiments. His chief instrument was a double metallic tube, the inner tube having six elastic steel branches at its extremity, which were intended to grasp the stone while it was bored by a lance-shaped perforator. In 1819, Civiale reduced the six branches to four, and in 1820, to three. A bow-drill was then added, and with these new instruments, experiments were publicly made in 1822 at the Hospital of La Pitie and the dissecting-rooms of the faculty. In April 1822—just three years after the proposal of Mr. Elderton appeared in the April number of the Edinburgh *Medical and Surgical Journal*, for 1819—came Amussat's description of his instrument for crushing stone, and in June of the same year, M. Leroy (now known as M. Leroy d'Etiolles) produced an implement which consisted of a double canula, of four long watch springs attached to the extremity of the inner canula, designed to catch the stone, and of perforators worked by a bow-drill.

In April 1823 M. Leroy announced a number of important improvements to the instrument. In May 1823, Civiale came forth from his retirement with an account of the work he was engaged in, and on the 10th day of January, 1824, in the presence of the Barons Percy and Chaussier, commissioners appointed by the Faculty, he performed his first operation. In this case the stone was successfully removed in two sittings, and during the next month (February) the operation was repeated on another person, and at the fourth sitting, the last vestige of the stone was extracted without pain or discomfort to the patient. To these two cures, a third was added a few days subseqently, and thus was demonstrated the right of the new operation to an honored position among the recognized expedients at the command of the surgeon—a position which every years experience only serves to raise higher and higher.

In this manner lithotrity came into vogue as a means of relief for patients suffering from stone in the bladder—let us next glance at the class of cases in which it is the best measure to adopt. This question can be determined at once by stating that in all cases where any operation is advisable, lithotrity is the one to be chosen provided:

First. The urinary passages are large enough to admit a lithotrite with ease, and permit it to be used with freedom; and

Second. That the nature and size of the stone is such that it can be crushed with advantage.

When a surgeon is brought face to face with a case of vesical calculus, and required to apply all the resources of his art for the relief of the sufferer, he knows that practically there are but two measures at his command—he can either cut the patient and remove the calculus, or pass an instrument and crush the stone *in situ*—the choice is between lithotomy and lithotrity. In determining in a given case, the preferable measure to adopt, he is guided to a certain extent by the experience of the profession. This pronounces unequivocally in favor of lithotrity in all cases in which the crushing process can be adopted. Accepting the teaching of experience as final, and looking upon all cases of vesical calculus as subjects for lithotrity, let us review with care, the indispensable requisites for that operation already detailed, and which can be summarized by saying that the preferable operation in all cases in which the stone will yield to the lithotrite, is by crushing, provided it is desirable to operate at all, and that the urinary passages are large enough to admit the instrument with ease, and are not so delicate but what it can remain in the bladder for a few moments at a time.

Sir Henry Thompson's remarks upon the necessity of accurately determining and properly estimating every point bearing upon the choice between lithotomy and lithotrity are very judicious and important. He points out the fact that formerly the patient was cut in all cases, and now, that two operations are at the choice of the surgeon, dwells upon the importance of choosing the right one, and says: "If you do not determine pretty accurately the characters of the stone and select the right operation, you may do more harm than if you cut every patient. If you crush the very large stone and cut for the very small one, you will have greater mortality than if you simply resorted to the one operation of cutting in all cases. When lithotrity was first introduced it was rather a clumsy operation ; and when the cases were not judiciously selected, when surgeons crushed without making a diagnosis of all these points—crushed stones that ought to have been cut, and left for cutting stones, which might have been crushed—the entire mortality resulting from stone was greater than previously, when every case was cut." *

This justly distinguished surgeon is in the habit of inculcating as axioms, certain rules relative to the selection of cases for operation. His first general direction is that all stones under puberty, with few exceptions, are to be cut. The urethra of a child is small, and its bladder, irritable. On the other hand, lithotomy is an eminently successful operation in childhood. But in cases where the stone is small, and the passages sufficiently resistant and free to admit instruments readily, and submit to their presence quietly, the rule is to be departed from and lithotrity used instead. His second axiom is, that with certain rare exceptions, all stones over puberty are to be crushed.

An oxalate of lime calculus over an inch in diameter, constitutes his first exception. A very large stone composed either of uric, or phosphoric acid, in like manner, constitutes a second exception. On the part of the organs themselves, an enlarged prostate, a tight stricture of the urethra, or an inflamed bladder which has become atonied and powerless, are other circumstances which militate against any operation, but especially against lithotrity. The peculiarities of each individual case must determine for or against the cutting or crushing operation.

Such, in brief are the rules of this esteemed and successful operator. If we revert to the essentials for lithotrity, which I enumerated a few moments ago, we will find that the crushing process is preferable in all cases where the stone will yield to the lithotrite, provided it is desirable to operate at all, and the urinary passages are large enough to admit the instrument with ease, and not so delicate but what it can remain in the bladder for a few moments at a time, and consider each one in detail, we will find, I think, that all the contra-indications to lithotrity can be arranged under one or the other of these different heads.

Is it desirable to operate at all? To this question a negative answer must be returned in many—very many—cases. Patients who suffer from advanced Bright's Disease, aneurism of one or

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* THOMPSON: Clinical Surgery.

other of the great vessels, organic disease of the heart, and the like, are manifestly not subjects for lithotrity, or any other capital operation. A minute microscopical examination of different specimens of the urine should be made sufficiently often to convince the operator not only that he is not dealing with a case of incurable kidney disease, but that the patient before him is free from organic degeneration of the bladder — for experience shows that villous disease of that organ may, and not unfrequently does co-exist with vesical calculus.

The size of the urethra and the degree of irritability of the urinary passages, are very important elements in the question of lithotrity or lithotomy. The smaller size and greater degree of irritability in the genito-urinary passages in a child, renders the crushing operation one much less applicable than a resort to the knife. With advancing years this necessity for the employment of the knife grows less and less, until in many cases in which the patients are still under puberty, the choice between the two operations will depend either solely, or to a very great degree, upon the ability of the surgeon to overcome vesical and urethral irritability to such a degree that the lithotrite can be tolerated in the bladder for a number of minutes in succession. It is sufficient at present to say that a judicious surgeon can overcome this hyperæsthetic state of the urinary mucous membrane in all cases where the passages are of a size to allow the entrance of a lithotrite, and it thus becomes evident that in the hands of such an operator, the number of cases in which it will be possible to substitute the crushing for the cutting process will be much greater than in the hands of one who blindly follows the rule, rather than strives to overcome contra-indications. The amount of obstruction afforded by a stricture of the urethra, or an enlarged prostate gland, whether occurring alone or complicated by urinary fistulæ and chronic cystitis, can only be estimated in each individual case. The general rule in organic stricture is not yet formulated, but the practice of the best surgeons inclines to lithotomy rather than to an operation for the relief of stricture, to be subsequently followed by lithotrity. Enlargement of the prostate can only militate against crushing where the obstruction is so great as to interfere with the proper manipulation of the lithotrite. The chronic cystitis which attends both stricture and prostatic hypertrophy, especially when attended by atony of the vesical walls, can only be viewed as an unmitigated evil, yet the fact that in some cases, the condition of the walls of the bladder is accompanied by great tolerance on the part of the mucous membrane lining that organ—a degree of tolerance that makes that structure indisposed to take on inflammatory action when subjected to the irritation arising from the presence of fragments of stone—prevents our including inflammation of the bladder among the conditions which contra-indicate the operation.

In cases where the general bodily health is such as to admit of an operation, and the state of the urinary organs favors lithotrity, a crushing operation may be rendered impracticable by the size, or the composition of the calculus. Thus, when the stone is of oxalate of lime, and exceeds an inch in diameter, it may be mechanically impossible to crush it by any force that can be brought to bear upon it, by the lithotrite. In a very large uric acid stone or a stone composed in great part of phosphatic salts, although within the power of an instrument to crush, yet the number of sittings necessary and the length of time during which the fragments would necessarily be in immediate contact with the lining membrane of the bladder, are circumstances which often induce the surgeon to resort to the knife, rather than to the lithotrite.

The instruments essential for lithotrity, are one or more lithotrites. A volume would not suffice to detail the changes which these instruments have undergone since Civiale's first operation. It will serve our present purpose to limit our remarks upon instruments to those which are peculiar and special to this operation, and also to those which seem best adapted for its safe and speedy performance. In this way, the field will be limited to two varieties of the instrument--the "fenestrated" and "scoop" lithotrites—and to two special forms, the one known as the French instrument, and the other, as that of Sir Henry Thompson.

For descriptive purposes the various parts of the lithotrite have received different names. Thus, we speak of the "handle," the "shaft" and the "beak;" by the first, referring to that part of the instrument which we grasp in operative manipulations—the portion of the instrument in which the mechanical appliances are concealed; by the last, to the curved terminal portion which opens and closes in response to the movements of the parts contained in the handle; and by the second, to the intervening part which comprises the closely interlocked blades which move upon each other in such manner that their extremities in the beak, open and close without increasing or diminishing the volume of the shaft one iota. The blades are distinguished as "male" and "female," the former being moveable while the latter is stationary. The beak of the latter is perforated in the "fenestrated" variety, while the opposing surface of the beak of the male blade is provided with sharp, angular teeth—the whole being so adapted that the male blade fits closely into the fenestra of the beak of its opponent. In the "scoop" lithotrite, or flat-bladed instrument, the opposing blades are only slightly roughened at the beak, but the instrument is admirably adapted to pulverize the sharp angular fragments which the more powerful "fenestrated" lithotrite leaves behind. Each variety has its special use—the former will break some calculi that the latter can do nothing with, while the latter can reduce fragments such as the former can hardly catch. When the surgeon has both at hand, the "fenestrated" instrument can be used for the first few sittings, and serves admirably to shatter to a convenient size, large and hard stones. The smooth-bladed instrument on the other hand, can be used to crush fragments, and small stones. Sir Henry Thompson records the important fact that more than seven-eighths of all his work has been accomplished with the smooth bladed lithotrite.

The choice between the French instrument and Thompson's modification, depends upon other circumstances than the absolute merits of the two instruments. Both are serviceable, and whichever the surgeon is in the habit of using, that will be the one he thinks best. Van Buren is inclined to believe that in cases of emergency, more reliance is to be placed upon the material used in the English, than that employed in the manufacture of the French instruments. However, whichever lithotrite the practitioner employs, his success will depend more upon his own dexterity than upon the character of the implement he uses.

If the instruments for the destruction of the calculus are so nearly perfect that there is not much to choose between two well-known varieties, there is no other point in the management of a case of lithotrity concerning which the operator can afford, for one moment, to relax the strictest scrutiny. If we direct attention, as we shall in a few moments, to the physical condition of the urinary organs in a case of stone in the bladder, we will see why it is that lithotrity is preeminently an operative procedure in which success depends upon attention to little things. Before doing so, however, we will glance at the origin and nature of those urinary concretions which it is the object of this operation to destroy.

The statistics collected by Thompson show that stone in the bladder is most common in individuals between fifty and seventy years of age. It is true that the teachings of all recognized authorities before this observer, placed childhood in the van, and it would seem after all, as if this were the case in children, compared with the number of cases in elderly adults. Yet if we take the individuals of either class relatively to the number of that class living at the time, the favorable period for calculus is from fifty-five to seventy-five; the next is that below puberty, and the most rare, that of middle age. Still, it is a fact to be borne in mind that half of the total number of hospital cases occur in patients under thirteen years of age.

Again, as to the varieties of calculi, and the numerical proportion of the different sorts. If we include in one group, the uric acid stones, and the stones compounded of the urates of potash, soda and ammonia; and in another, the calculi formed by the union of phosphoric acid with potash and soda, and lime, magnesia and ammonia—the ammonio-magnesian calculus, the fusible calculus and the calculus of phosphate of lime—leaving for a third group, the oxalate of lime stones, and on account of their comparative rarity leaving out of consideration the infrequent cases of calculi composed of carbonate of lime and cystine, we estimate the relative frequency of different varieties as follows:

Calculi of uric acid, and the urates,	60	per cent.
Phosphatic calculi,	36	"
Oxalate of lime calculi,	4	"

The nuclei of either class may form in the kidney and only live the latter part of their career in the bladder, yet, although this is the general rule for the nuclei of uric acid stones, and stones of the oxalate of lime, it is the exception for the phosphates. However, when the nucleus of a stone is either formed in the bladder, or comes to it from the upper urinary passages, its manner of enlargement is much the same in all cases. The influence of the salts of the decomposed urine can be detected in the layers which coat the central nucleus, when the stone has grown by accretion. With a nucleus of oxalate of lime, or uric acid, a phosphatic stone may take from two to three years to attain its full size; a calculus of uric acid, or the urates, a much longer time; while with one composed of oxalic acid and lime, a still greater period will intervene. After a certain size has been reached, the degree of irritability on the part of the bladder, will not only determine the rate of growth, but the nature of the deposited material. This is true, whether the original nucleus is composed of oxalic or uric acid, or is a deposit of the phosphates. With an irritable bladder, predisposed to cystitis and a rough and irregular stone, the acidity of the urine may be neutralized by a hypersecretion of vesical mucus, due to mechanical irritation, and as a consequence, deposits of the earthy phosphates first take place—a condition speedily followed by decomposition of the retained urine and the generation of ammonia, a state of the bladder and its contents extremely favorable for the deposition of layers of the fusible calculus, and one that will be dwelt upon when we come to consider the local changes wrought by a stone in the bladder.

When a patient with stone in the bladder comes before a surgeon, and desires to have the calculus removed, what is the duty of the latter? The proper answer to this question involves a recognition of the size of the stone and the state of the bladder, besides a determination of the question, as to whether the patient is a person upon whom it would be right to perform a capital operation. Granting that the individual is one in whose case lithotrity is the measure to resort to, and that furthermore he is one upon whom the lithotrite can be passed, it is still necessary to recount the manner in which the diagnostician determines the size and composition of the stone, the state of the bladder, and fixes upon the means best adapted to place the patient in a proper condition for the operation. This having been done, the different steps of the operation will be described.

In determing the size and the number of the calculi in the bladder by means of the lithotrite, certain facts are to be borne in mind. The general rule is that vesical calculi are solitary, and that in size they may vary from dimensions a trifle too great to permit of their passage along the urethra, to a bulk only limited by the degree of distensibility of the bladder. Their weight and density vary with their chemical composition—the former, alone, can give no adequate idea of the volume of the concretion. The oxalate of limestone is heaviest in proportion to its volume; next comes the pure uric acid calculus; while the lightest and most fragile are those composed of the phosphates. Again, the outer layers of a stone may be brittle and soft, while the nucleus is hard and resisting. Thus, an oxalate of lime calculus may present several layers of phosphates which give a deceptive feeling to the touch, and only reveals its true character after the lithotrite has been applied once or twice. It sometimes happens also, that an accumulation of the phosphates may be coated with a deposit of the oxalates, and the diagnostician may be equally deceived by a fictitious sensation of hardness.

While single calculi are the rule, two or more stones are found in one out of every seven or eight cases presented to the surgeon. The manner of determining the number of calculi and their composition in a given case will be detailed when the method of introducing the lithotrite and manipulating it in the bladder comes up for description.

In order to appreciate properly the state of a bladder in which a calculus has developed itself, let us glance at a few points in the clinical history of patients so affected, and endeavor to find an explanation of the symptoms complained of, in the pathological condition of the structures most affected. In doing so, reference will be freely made to the work of Van Buren and Keyes, in which this subject is most thoroughly treated of, and where the student will find an admirable account of the symptoms and pathology of stone.

The first evidences of the presence of a stone are uneasy sensations referable to the neck of the bladder, and a desire to pass water, recurring with unusual frequency. The stone, when small and movable, is liable to be carried by the flow of urine to the outlet of the bladder, and thus to cause sudden stoppage of the stream, accompanied by a sharp twinge of pain along the course of the urethra, felt most acutely at its outlet. The muscles at the neck of the bladder are thrown into spasmodic contraction by the presence of a foreign substance, and grasp it closely; if the surface is rough, the contact brings blood from the sensitive and vascular membrane, and this is voided with the next urine that passes. The neck of the bladder is its most sensitive part, and the recurrence of this rough contact sooner or later develops inflammation. Under these circumstances inflammation begins at the neck of the bladder and involves the body of the organ; and as the stone grows, after a longer or shorter period of simple irritation, cystitis is established—brought about by mechanical violence, both from contact with the stone and by bruising from spasmodic contraction of the muscles concerned in urination. Inflammation of the bladder from stone, is gradual of approach and chronic in character. During the first few weeks or months of the stones presence in the bladder, while as yet, there is no cystitis, but only irritation, the urine remains bright and clear, showing only a slight increase of mucus, or perhaps, a little blood occasionally—the latter, generally due to some rough exercise. But so soon as cystitis sets in, pus corpuscles present themselves. Hypertrophy of the muscular coat of the bladder is gradually taking place, its interlacing fibres assume prominence, and the irritated organ, intolerant of distension, discharges its contents at still smaller intervals, and speedily a tendency to contraction is established. The presence of alkaline pus in the urine occasions a more rapid increase in the size of the stone from phosphatic precipitation, and exudation in the submucous web of connective tissue, adds materially to the thickness of the bladder walls. The time required to bring about these changes varies greatly. A child may carry a calculus for years, and yet the urine may remain bright and free from pus ; in adults, extensive alterations occur rapidly. Pre-existing lesions of the obstructive sort in an old man may have already give rise to chronic cystitis with contraction of the bladder and thickening of its walls ; or, as occurs not infrequently from prostatic obstruction, the bladder may have given up the struggle to overcome the obstacle, and may have fallen into atony, with loss of contractile power, and indefinite expansibility. The pain and suffering in the first of these two conditions, are infinitely the greater, for the spasmodic contraction of the hypertrophied muscular walls of the bladder tends to grind the diseased mucous membrane against the newly formed stone, often to force the stone into painful contact with the more sensitive neck, and thus add to the existing obstruction, and increase the difficulty and frequency with which the urine is voided. In the latter condition, the contractile element being absent, the patient is compelled to draw off his urine with a catheter, and is thus free from the constantly recurring desire to urinate, with its accompanying spasms and tenesmus, and suffers, instead, a milder pain at longer intervals. Other changes are liable to occur in the bladder. A hollow developes behind the prostate, called by the French, the "bas-fond" of the bladder. This becomes necessarily, both in the upright and horizontal positions of the body, the deepest, as well as the most dependent portion of the cavity of the bladder, and it is therefore, usually occupied by the stone when present; and the stone is thus, in a manner prevented from contact with the sensitive outlet of the bladder. This excavation is often so considerable that an ordinary sound cannot be made to reach a calculus lodged in it. A sound with a short curve like a lithotrite is the instrument to be employed whenever a stone is suspected in a case of enlarged prostate. Calculi may and often do form in the little pouches jutting out between the meshes of hypertrophied muscular fibres, known as sacculi, and sometimes become so large as to be permanently entrapped in these cavities.

In cases in which the bladder has lost its contractile power from neglect to employ the catheter, it is constantly in an over-distended, water-logged condition, relieving itself irregularly and imperfectly by spontaneous overflow. Civiale called this "stagnation." Under these circumstances, and indeed, whenever the outlet of the bladder is the seat of obstruction, the ureters, subjected also, to over-distension, become dilated and tortuous; the inflammation of the mucous membrane of the bladder extends to, and gradually involves their altered and weakened walls, and continuing to extend, finally invades the pelves of the kidneys. The secreting structure of the kidneys, predisposed to disease by disturbance of function, now participates in the advancing disorder, and functional disturbance of serious import, attended by evidence of uræmic poisoning, foreshadows the fatal result which is imminent. This is the usual course by which the end of life is reached in vesical calculus, not interfered with by art—especially when associated with obstructive disease. Occasionally calculi escape by ulceration; such cases, however, are extremely rare. It is curious and noteworthy that in these cases no urine is extravasated—the effort being purely conservative. Multiple abscesses not infrequently form in the prostate, while abscesses outside the bladder in the neighborhood of its neck, are complications of possible occurrence. Deposits of pus may not only be discovered in these situations in fatal cases, but circumscribed abscesses of the liver, spleen and kidneys, are common.

The position assumed by the patent is a point of the first importance, not only in the operation of lithotrity, but in every step of the preparatory explorations, when it is necessary to pass the lithotrite and grasp the stone. By elevating and arranging the bed, and properly placing the patient, we can, in great degree, surmount those obstacles to the operation which are due to morbid changes in the shape of the bladder. Elevating the hips tends to roll the stone back from the orifice of the bladder, and is a maneuver demanded in the youth where the pear-like shape of the organ causes the stone to fall to the sensitive parts about the neck, and in the aged, where changes in the bladder and prostate are liable to produce an excavation behind the gland in which the stone is concealed. It is also advisable that the patient retain his urine for two or three hours at least, before the lithotrite is passed. This measure conduces more surely to the presence of a sufficient quantity of liquid in the bladder for the operation, than does injecting the bladder before the introduction of the lithotrite, it matters not what precautions may be used, nor what care is exercised in throwing fluid into that organ.

The patient properly placed, the surgeon takes position on his right side, and with a lithotrite warmed and oiled, prepares to pass it into the bladder. It may not be unnecessary to state that the side upon which the surgeon stands is the reverse of that occupied when a catheter is to be passed, and the reason is, that after the lithotrite is in the bladder, he will not have to change sides in order to place himself in the best position to manipulate with his right hand. Standing thus, on the right side of the patient, the surgeon inserts the beak of the lithotrite in the mouth of the urethra, and with his right hand, slowly and gently draws the penis over the instrument in such manner that, without changing the position of his left hand in which he holds the lithotrite, carefully balanced, the the urethra is slowly pulled over the beak and on the shaft. This done, the handle of the lithotrite is to be slowly elevated to a vertical position, the right hand of the surgeon, meanwhile following carefully the curve of the beak in the perineum, and directing the point of the beak towards the orifice through which the urethra perforates the triangular ligament. As the shaft and handle of the instrument approach a vertical position, the surgeon must carefully manipulate, and if necessary, slightly elevate the beak in order to make the point of the instrument enter this opening. So soon as the beak is well engaged, the surgeon changes hands. With the right hand he takes hold of the handle, and with the thumb and fore-finger of the left, encircles the base of the penis and presses down, so as to stretch the triangular ligament of that organ. While the left hand is so engaged—the beak, meanwhile, being well into the membranous portion of the urethra—the right hand slowly depresses the handle of the lithotrite, care being taken that no more force is exerted than is necessary to carry the point from the membranous, to the prostatic portion of the urethra. If the left hand keeps up a constant pressure upon the base of the penis, the beak will readily, easily and without material discomfort, pass from the membranous urethra along the prostatic sinus, and, as the handle approaches a horizontal direction, first the point, and then the angle of the beak will enter the bladder. The power of rotating the shaft laterally is proof positive of the presence of the beak in the bladder.

In advanced life more difficulty may be met with in introducing the lithotrite. The prostatic sinus is more excavated, and between it and the depression behind the prostate, a bar-like elevation due to senile changes, is often encountered. In such cases the passage of the beak along the prostatic portion of the urethra must be carefully watched; tension must be exercised so as to stretch the suspensory ligament of the penis to the utmost, and the increased depth of the passage between the triangular ligament and the opening of the bladder, must be constantly borne in mind. If this is done, the lithotrite will gradually overcome all obstructions and enter the bladder with ease. One source of error is constantly to be borne in mind. Thus, when the urethra is surrounded by an enlarged prostate, and its calibre is narrowed from side to side by encroachment of the lateral lobes, the vertical diameter of the canal is correspondingly increased, and this peculiar change of shape in the prostatic urethra—together with the delay in reaching the bladder in consequence of increased length of the passage—is likely to lead the operator to depress the handle of the lithotrite too soon. The greater depth of floor and heighth of ceiling in the prostatic urethra under the circumstances, will readily permit the beak of the instrument to rise into its cavity, and, the operator, regarding only the depth to which his lithotrite has penetrated, may readily deceive himself with the idea that its beak has entered the bladder, when, in reality, it is still in the prostatic sinus. The obstruction to lateral rotation of the shaft will at once correct this impression. By again elevating the handle and gently urging forward its depressed beak, the cavity of the bladder is speedily entered.

When once the sensation of freedom of motion which announces the arrival of the beak of the lithotrite in the bladder is experienced, the angle formed by the shaft and handle of the instrument with the body of the patient is to be carefully noted, and the surgeon should endeavor, in the manipulations afterwards, not to deviate from it more than is absolutely necessary. In certain maneuvers essential in exceptional cases, this angle must be departed from, but the rule is to preserve and adhere to it whenever possible.

Furthermore, the patient should not be notified of the day the operator proposes to crush. Let him become perfectly familiar with all the movements necessary for the introduction, search for, and measurement of the stone, but so far as the time for crushing is concerned, that had better remain a secret with the surgeon. Again, the sooner the latter adopts an invariable rule in regard to the length of time he permits his instruments to remain in the urinary passages, the better it will be for his success. Three minutes should be the limit in ordinary cases. If, for instance, the operator determines to crush on a certain day, but when the time arrives, he finds that through some unusual situation assumed by the stone, or unnatural degree of irritability on the part of the bladder, he is foiled in speedily grasping the calculus with the lithotrite, or that the manipulations necessary to do so are more prolonged than the bladder is accustomed to, a proper regard for his patient's interests requires that the operation should be postponed. If he does not tell the patient the day he proposes to crush, the latter will not know that anything has occurred to delay the operation, and the surgeon will be saved the necessity of explaining, and the patient, the doubts and anxieties which would inevitably arise.

The management of the patient after he comes into the hands of the surgeon, and before the stone is crushed, is of the utmost importance. The urine should first be carefully examined with the microscope and its reaction, and the amount of pus present, carefully noted. The preparatory treatment should be based upon the idea that the bladder is to be placed at rest; and the general health, carefully attended to. The bowels should be made to act at least once a day, and any irritation about the rectum must be alleviated. All exercise calculated to bring the stone into violent contact with the neck of the bladder should be absolutely interdicted. The diet should be bland and nutritious, but not stimulating. The patient should be kept as much as possible in the fresh air and sunlight, and every endeavor made to render his surroundings bright and cheerful. Let him drive daily in an easy-going vehicle, and if the season and locality permit, he can indulge freely in yachting and sailing—but no rowing. If this course is followed for a week or two, the quantity of pus in the urine will steadily diminish, and the irritating character of the excretion will in great measure be lost. At least two weeks of this preparatory treatment is requisite before the stone should be crushed for the first time.

If the bladder is much inflamed, irritable and liable to spasm, in addition to the measure already directed, the surgeon should himself wash it out twice a day. The efficacy of this measure depends entirely upon the manner in which it is executed, and too much care cannot be exercised in its performance. A large-eyed silver catheter, a four-ounce india-rubber bottle and a little of the tincture of the chloride of iron, are all that is required. After introducing the catheter and drawing off the urine, inject an ounce of water to which two or three drops of the tincture have been added. When this has been returned—and with it, more or less of the phosphatic salts from the decomposed urine—inject the same amount again, and repeat this operation until the four-ounce flexible bottle is emptied, by which time the last injection will be returned from the bladder quite clear. The use of the lithotrite daily, or every other day, affords the surgeon an opportunity to familiarize the patient with its introduction and manipulation within the bladder, and enables him to test the character of the stone, so far as contact with it will enable him to judge, and to measure its size in all its diameters. When the surgeon faithfully attends to all these points personally, he will almost invariably have the satisfaction of seeing that the vesical irritability will daily grow less, the patient become accustomed to the use of the instruments in the same proportion, and that his acquaintance with the peculiarities of his patient's constitution will become such that he will be enabled to enter upon the operation with so just a comprehension of his case that the chances of failure will be reduced to the minimum.

When the day for crushing arrives, the surgeon should endeavor to proceed as if nothing unusual was to happen. Carefully regulating the position of the patient according to the requirements of the case, as determined by the preparatory explorations, the lithotrite is introduced in the manner described. It generally happens under these circumstances, that the lithotrite comes in contact with the stone immediately after the beak of the former emerges from the prostatic sinus, and is passing through the cavity of that viscus, on its way to the posterior wall. When it is touched, the operator cautiously turns the beak away from the stone, and by gently withdrawing the male blade opens the jaws of the instrument widely enough to grasp it. The beak of the lithotrite is rotated away from the stone before moving the male blade, in order to prevent the concavity of the jaw, as it is being withdrawn, from striking the stone, and thus altering its position. During this maneuver the female part of the lithotrite is held with the convexity of the beak against the junction of the posterior wall with the floor of the bladder with the left hand, while with the right hand the male blade is drawn towards the operator, care being exercised that it is not drawn so far as to come in contact with the neck of the bladder. The open jaws are now made to embrace the stone by rotating the handle of the lithotrite to a horizontal position, and are gently closed upon it. As soon as the stone is grasped the instrument is rotated until its jaws are vertical, and the button-trigger in the handle is pressed back by the thumb of the right hand, thus fixing the male blade, and at the same time bringing the screw into gear. The lithotrite is now ready for the application of the screw power. An old and very good rule is, that at this point, the surgeon satisfies himself by the slight withdrawal and partial rotation of the instrument with the calculus in its teeth, of the perfect mobility of the lithotrite, and that no portion of the lining membrane of the bladder has been included within its jaws. With the turning of the screw the operator may recognize a sharp cracking, or softer crushing sensation, according to the nature of the calculus. Having screwed the male blade well home, the trigger is to be slipped by a motion of the right thumb, and the jaws again separated. Rotate the shaft so that the open jaws are turned laterally to the spot where the stone was first seized, and then close them. If the stone was large enough originally to make fragments of any size, no trouble will usually be experienced in catching one, when the same maneuver as before being repeated, the screw power is applied and the fragment reduced to powder. The number of crushings at one sitting must be determined by the time occupied, and the fact is that the great danger at this stage of the operation results from the surgeon yielding to the temptation to continue the crushing process too long.

But what is to be done if the stone is not met in passing the lithotrite to the back of the bladder? Simply this: The jaws of the beak being opened, they are inclined to an angle of 45° on the right side, and then closed, when, if the calculus is not caught, the same maneuver is to be repeated on the left side. If the stone is not encountered on either side, the operator repeats the procedure, opening and closing the jaws, after inclining the beak to a horizontal direction, first on one side, and then on the other. If the position of the patient is properly regulated, the stone will always be caught by one or other of these maneuvers—the only conceivable condition of the parts in which the stone could evade the jaws of the lithotrite, under these circumstances, is one in which considerable enlargement of the prostate gland coincides with great depression of the walls of the bladder behind it, while the *bas fond* is separated from the prostatic sinus by marked elevation of the tissues in a ridge-like form at the neck of the bladder. This state of the parts is readily recognized and not only requires special preparatory treatment, but a peculiar series of movements with the lithotrite in order to grasp the stone.

When it has been ascertained during the preliminary study of a case, that the stone is lodged in an excavation at the base of the bladder behind the inferior margin of its outlet, the lithotrite may have to be "reversed" in order to catch it. To do this, the beak of the lithotrite, by rotation of the handle of the instrument, is swept around a half circle until it looks directly back towards the patient's rectum. In performing this maneuver, the handle of the lithotrite is depressed between the thighs of the patient, changing the oblique direction of its shaft until it is in line with the patients body. This movement so inclines the beak of the instrument towards the center of the bladder that, while in its cavity, there is little danger of rough contact with the vesical walls. Very often this rotation causes contact with the stone, and enables the operator at once to seize and crush it. If not, he should carefully follow something like the following plan: Having opened the jaws of the lithotrite in the same manner as when the instrument occupies the natural position, incline them to one side at an angle of 45° and carefully close them. If nothing is encountered, open as before, incline them to the same angle on the opposite side, and again close them. Should both movements result in the negative, while the lithotrite still occupies the reversed position, gently withdraw the male blade until it is almost in contact with the prostate—the widely opened jaws of the instrument being vertical—and while the male blade is firmly held in this position, the female blade is gently drawn home, the handle of the lithotrite, at the same time being raised so that the extremity of the female blade may impinge upon the floor of the bladder throughout the whole extent of the journey from the posterior wall of the bladder to the urethral outlet of that organ.

If one will but frame before his mind's-eye a diagram of the bladder, and follow, in imagination, the movements of the lithotrite in the upright and reversed positions as we have described them, he will see that the beak of the instrument passes so completely over the space enclosed by the walls of the bladder that no calculus, however small, could evade contact with it. When the maneuvers described have been executed, and no stone has been found, the examiner knows that there is either no calculus in the bladder, or the case is one of those rare instances of encysted calculus which this method of exploration cannot diagnosticate.

It occasionally happens in cases where the stone is originally small, the urethra capacious and healthy, and the crushing process very complete the first time, that the patient is entirely relieved by one operation. But such cases are rare, and in the majority of operations, the primary crushing will have to be followed by a number of repetitions of the process. The duration of the interval permitted to elapse between the first and second operation should not be less than three or four days, but will depend upon the reaction following the first crushing, and in some measure, upon the quantity of material which the urine brings from the bladder. As a rule the latter is not great, the fragments left after the first crushing being usually too large to pass from the urethra. The reaction of the bladder to pressure applied over the pubes, the color of the urine and the quantity of pus voided with it, compared with those characters before the operation, will serve to determine the length of time that will be required to elapse before the lithotrite can be used a second time. As soon as the irritation has subsided sufficiently, the fragments can be sought for, and crushed. The lithotrite with small blades can be used for this operation, and it will be found that the information acquired during the preliminary investigation, and the first operation, will enable the surgeon to seize upon the remaining fragments with ease and certainty. Also, the knowledge he is continually acquiring relative to the tolerance of the patient's bladder will be of the greatest service to him in regulating the time for subsequent crushings. When operations are conducted with gentleness, each one is borne better and better. The irritation of the bladder continually diminishes, and the intervals between the calls to urinate gradually grow longer. At length pieces of stone and particles of sand cease to pass, and the surgeon finds that no more fragments remain in the bladder, so far as he can determine by the employment of the lithotrite. This very satisfactory condition may be attained as the result of one operation in certain rare cases, but as a rule, from five to fifteen crushings are necessary to remove an ordinary stone.

There are certain contingencies which may arise, still to be considered, but as this paper has now reached a length never contemplated, I will conclude by quoting the brief *resume* with which Sir Henry Thompson dismissed the subject in his "Clinical Lectures on the Urinary Organs." He says: "The first contingency is fever; the second, bleeding; thirdly, cystitis; fourthly, orchitis; fifthly, retention of urine; and lastly, exhaustion, which is sometimes fatal. A peculiar kind of feverish attack is, as you know, common after all instrumental operations on the urethra. The phenomena of cold chill, dry burning heat and sweating, proceeding in this order, more or less severely. Do not "meet these symptoms" by a too active treatment; I know none of much service; when a patient is thirsty, give him drink; and don't press food on him until he is somewhat disposed for it. Rely on it, what we call fever here, is nature's struggle against some poison in the course of elimination; only take care that the hygienic conditions are good. After the attack, he is weak and requires good and nourishing food. Bleeding is rarely troublesome, and does not require much treatment. Cystitis gives a little trouble occasionally, and is to be treated in the ordinary way. Inflammation of the testicles requires you to desist for a time from operating, chronic retention of urine is apt to occur very insiduously—not absolute, but partial retention. Always look out for it, if frequency of micturition increases, and the urine becomes increasingly thick, and if the bladder is not emptying itself, you must pass the catheter once or twice a day. Sometimes exhaustion occurs, after a number of sittings the patient's strength gives way. That however, is very rare."

Art. 5.—A Case of Chronic Hiccough.

By C. SHRIVER, M. D., Bethany, W. Va.

H. Johnston, colored, æt. 19, on April 1st, 1876, was taken with vomiting. Cephalagia, aching and violent pains in all portions of the muscular system. This continued for three or four days, and vomiting almost continually. Was first seen by a Homæopathist and was under his treatment for about three weeks; in the beginning of the 2nd week of the treatment a violent hiccough made its appearance, the paroxysms were so continued and incessant that at times she would become completely exhausted, subsequently she was under the treatment of two other physicians, from about the 1st of May to the 1st of August; had taken purgatives, opium, strychina, quinine, etc., with but little improvement.

On August 3rd, first came to my office, her condition was as follows at the time: emaciated, weak, she said she could scarcely walk, pulse 98, 1st, sound of the heart weakened, 2nd, sound of abnormal length, respiration 34. Hiccough continued and loud enough to be heard on the street, tongue coated with brownish fur. Her appearence indicated an advanced state of nervous exhaustion. I gave her the following prescription : ℞ calomel grs. x. pulv. doveri grs. xv. ext. gentian, q. s. mix and divide into 4 pills, one morning and evening, to be followed by rochelle salts, also a solution of potass. brom. in syrup to be taken 4 times daily.

August 10th, condition much the same, added to the bromide hydrate of chloral and fl. ext. belladonna, to continue as before. On the 11th, the hiccough ceased and did not return until the morning of the fourth day following, when she awoke with the malady as violent as ever. August 19, hiccough still continues but not so loud nor so frequent; ordered empl. cantharides 4x4 m. upon the gastric region, ceased the bromide and gave decoction of white mustard, 2 oz. to a pint of water, tablespoonful every 4 hours. Observed that when pressure was made upon the stomach the hiccough was increased in frequency and in loudness.

On the 28th of August she returned with but little change in her condition and heartily discouraged, at the same time the heart's action had improved somewhat and the appetite was a little better. Ordered lactopeptine in ten grain doses with a small quantity of grey powder three times daily.

Again, on the 10th of September she returned and there seemed to be some improvement, and not so depressed in spirit. Ordered comp. cathartic pills U. S. P. one every night or alternate night, to keep the bowels soluble, and wine of pepsin ℥iv. acid nitric ʒiiss. mix, teaspoonful three times daily. She continued under this treatment and on the 20th, of September when the malady ceased entirely; continued treatment for three weeks.

She now continued well until the 15th of December, when she again commenced hiccoughing occasionally, but did not think it necessary to take medicine, gradually grew worse until about the 25th, then she was as bad as at any former time. Again gave her wine of pepsin, nitric acid and pills; continued treatment for two weeks with complete success. Since the 15th of January she has been in good health. This has been a very obstinate and singular case, the like of which I have never met before in my practice. I consulted brethren much older and more eminent in practice than myself, all telling me they had never met a case of like character, I consulted many authors but found no light.

What was the disease, was it dyspepsia, if so, what was the specific irritation communicated to the gastric nerves, to cause so intractable a hiccough? The catamenia continued regular in time and quantity all through the duration of her malady.

Art. 6.—Medical Judgment. What is it? Can it be cultivated?

This is a most important subject for consideration to the young doctor in his prospective relation to his fellow men as a successful physician. The questions—What is a sound medical judgment? Is it capable of cultivation? What are its necessary elements? Are well worthy of careful deliberation and discussion.

Judgment is that faculty of the mind which draws conclusions from given premises presented to its consideration. It presupposes that the person exercising it is not idiotic or insane, but is of at least average mental capacity. It calls for a more or less complete knowledge of all the facts involved in a correct solution of the question at issue. It demands a careful comparison and weighing of the value of these facts and a subsequent decision in accord with the preponderance of the evidence. These ideas are more fully developed as follows. The word judge is derived primarily from the latin word *jus*, meaning law or right, and secondarily from a combination of the words *jus* and *dico*, to speak the right. In the English language the word judge is applied to the person who decides questions of law and equity, and his judgment or decision is his application of the law of right. In a court of law the judge is required to ascertain all the facts involved in a certain given case, to determine to which side the weight of evidence leans, and to give lawful judgment in accordance with that preponderating evidence. Something of a similar character goes on in each individual mind when the faculty of judgment is exercised. The foundation facts are first marshalled in array, comparison of values then takes place, the balance of evidence is determined and the preponderance of testimony takes place, the balance of evidence is determined and the preponderance of testimony for or against a certain conclusion is embodied in an opinion, a decision, or a judgment. This process is gone through with by all classes of mentally sound men engaged in the various callings of life. The farmer in a case calling for his decision or judgment, whether a certain field shall be sown in wheat, inquires in his own mind whether the soil is suitable, whether the climate is propitious, whether the seed is good, etc., on all of which points his opinion should be decidedly favorable before he carries his decision into practice. The banker in concluding to make a certain investment first inquires whether it is a safe one, whether it is remunerative, etc. These illustrations show that a complete review of the facts involved must first take place, and the correct conclusion or judgment must be in accord with the weight of evidence as it leans to one side or the other: in other words that sound judgment consists in a full knowledge of the facts involved and in a capacity for comparison as to their value in making up a decision.

Medical judgment in its abstract elements does not differ from that displayed in any other calling in life. The same knowledge of facts as premises and the same comparison of value as to weight are necessary to correct conclusions. Without such knowledge of the facts involved, or without the careful weighing and comparison of the evidence, the decision or judgment must be imperfect and erroneous. Just here we clearly perceive the faultiness of many physicians. Their knowledge perhaps is limited, or their faculty of comparison has not been carefully exercised and hence their medical judgment is of correspondingly little worth.

The question — Can this faculty be cultivated? — resolves itself then into two parts; first, can the necessary facts be acquired; and second, can the faculty of comparison or weighing evidence be improved? To the first part the answer is plain. Medicine is not an exact and complete science, but there is a vast storehouse of accumulated and accumulating facts which may well dismay the new beginner when he is invited to acquaint himself with them. Such a labor requires diligence, energy and perseverance, and according as a physician gives them to his work, just so far will his medical judgment be valuable and properly valued. To the second part—can we cultivate the faculty of weighing evidence? The answer is still plainer. Every careful attempt to weigh evidence improves the faculty of weighing it. The mind in all its several faculties and functions is capable of education and improvement. The memory is cultivated by carefully and attentively making ourselves acquainted with any series of facts, each succeeding effort of care and attention improving the faculty of memory. The imagination is cultivated by reading works of poetry and fiction, by viewing the pictures and statues of notable artists, by hearing the masterpieces of vocal and instrumental music, and by reproducing their ideals as far as possible to the eye of the mind in our private meditations. This is the law of our mental as well as of our physical constitution: strength and improvement comes from use of a certain power or faculty, as also, conversely weakness and deterioration comes from non-use.

We are now prepared to approach the question—How to cultivate a sound medical judgment? First marshall all the facts which have a bearing on the question. If memory is unable to present all the facts steadily before the mind, hunt them up carefully and write them out in separate columns as bearing for, or against a certain conclusion regarded as probable. This exercise is exceedingly beneficial, and encourages the careful survey of the case without which sound judgment is impossible. The student who begins his studies in this way, as did Francis Lord Jeffrey in his careful study of logic, may sometime arrive at the highest possible excellence of human judgment. The habit of careful survey of the case is of inestimable value, and is well worth all the trouble and pains involved in forming it. After the careful array of the facts comes the process of comparing, weighing and forming the decision or judgment. Fixing the attention on each separate fact now marshalled in array, carefully determine its weight in deciding the question, even going so far, if you choose, as to mark them with figures showing their individual importance. Then cast up the account, strike the balance and give judgment where facts preponderate.

The doctor who follows out something like this system as far as human imperfections will allow him, will surely make himself known as a man of sound medical judgment whose opinions are valuable, whose advice is sought after, and whose wisdom is venerated. On the contrary, the physician who makes up his opinions after a hasty and imperfect survey of the case, who consequently is vacillating and capricious in his treatment and unsuccessful in his results, will be held in light esteem by reasonable men and known as a man of poor medical judgment.

GOSIFO.

Art. 7.—Quiniaphobia.

By FORDYCE GRINNELL, Physician to Wichita Agency, Indian Territory.

Prejudice against the use of sulphate of quinia seems strongly rooted in the minds of many persons, so that in cases where its remedial agency is important, objections to its use are urged with much persistance. The form these objections assume is sometimes like this: "O! I am afraid to use quinine. I fear so much of it will injure me for life, Dr. — says it is bad, and I have heard that the ringing in the ears will after a while result in deafness."

However groundless such objections may be, the fact of their existence cannot be ignored, and perhaps in some instances the medical fraternity has been in fault that these unreasonable conclusions ever had an existence. That intermittent fever without the use of quinia or any other remedy will itself give rise to violent and continued ringing in the ears cannot be doubted. Dr. Livingston while traveling in Africa was deprived of his medicine chest, through the carelessness of one of his servants, and thus was deprived of this important weapon of defence for some months, while in the midst of the malarial marshes of Central Africa. One of the unpleasant symptoms to which the fever gave rise, was the dizziness and ringing in the ears, which he continually suffered. He refers to the fact that when quinia is taken this symptom is invariably referred to its use.

That quinia taken in large doses will temporarily give rise to a similar train of symptoms, perhaps no one will deny. But that these effects are often a result of the fever alone I have had frequent occasion to observe. Persons, coming from a distance, have applied at my office for remedies, having been the subjects of intermittent fever for days and sometimes for weeks, who have especially complained of this dizziness and unpleasant ringing in the ears, in fact many of the symptoms of cinchonism, but who have taken no medicine whatever, indeed, having had to travel many weary miles before they could secure appropriate treatment. A multiplicity of such symptoms occurring in this disease where the remedy cannot be had, leads us to conclude, that frequently where quinia is used the effects of the poison are unjustly attributed to the remedy. The neuralgia arising from the effects of this poison, is so severe at times that could those afflicted with quiniaphobia by any means fasten that upon quinia as one of *its* effects, they would have a symptom worth parading before the world—and one which would no doubt secure many converts to their standard. When the writer first came to this agency, he found many among the white population entertaining such false notions concerning the effects of cinchonia and its alkaloids; the Aborignies, the principle population, although living in a malarious district had not so learned the virtues of any remedy, but that the bitter taste of the one in question formed in their minds no inconsiderable argument against it. But this has given place to quite a different state of things.

These Indians have learned the value of quinia not only as a life preserver in the more serious forms of malarial fever, as well as a cure for the constantly recurring fevers of Autumn, but that its prophylactic powers may be made use of to avoid those unpleasant intrusions upon their well being altogether. The Wichita chief not infrequently calls at the office and wants a dose of that "white medicine," not that he now has fever, but that he is afraid he may have. "He feels like it." He takes the paper of powder dry and turns it back in his mouth, swallowing with a sip of water, with a faith in its efficacy begotten by some years of experience, and he is not the only one whom experience has taught wisdom, many of his tribe follow his example. In the more persistent cases of malarial fever these Indians feel better satisfied with this prescription.

℞	Tinct. ferri chloridi	℥ss.
	Sul. quinia	ʒiss.

M. Take 20 drops in water three times daily. To be preceeded by a purgative where indicated.

When a chill seizes upon a patient while under immediate observation, the prompt administration of from 40 to 70 minims of chloroform as suggested by Dr. H. Hartshorne is very efficacious in shortening the duration of the chill, or when early administered may almost wholly interrupt it. These fevers which sometimes partake of the typhoid nature, becoming continuous rather than intermitting, are found frequently to yield to repeated and large doses of quinia. Whatever question may arise as to the existence of the hybrid known as "typho-malarial fever," or the propriety of the name that that fever which began as intermittent, and in time by neglect became continuous with markedly typhoidal symptoms, will generally yield to anti-periodic remedies, seems somewhat to distinguish it from the ordinary type of typhoid fever.

Have the largest doses of quinia deemed necessary in treatment resulted in more than temporary obstruction to hearing, or such as might result from the fever itself? As far as personal knowledge is concerned a negative reply must be given. No case of permanent deafness has ever arisen here or within the limits of this wide malarious district. Comprising three large Indian agencies two military posts, and an area of country containing quite a numerous population besides. Well authenticated cases may exist but such have not as yet come to our knowledge from any source. Nevertheless quiniaphobia exists—itself a disease with well marked symptoms. One of them is that in lieu of these salts, the afflicted will gulp down bottle after bottle of patent ague cures, regardless of the nature of the nostrums which their proprietors care not to disclose.

While carefully straining out what they *conceive* to be a gnat, they swallow the camel, hoofs and all with easy conscience.

If any remedy may be said to be a specific in any given disease, that may be said with confidence of the salts of cinchonia in malarial affections.

Art. 8.—The Effect of Salicylic Acid in six Cases of Acute Rheumatism.

By S. H. Collins, M. D.

Late Res. Phys. Cincinnati Hospital.

I do not intend to inflict upon the reader any theory regarding the mode of action of salicylic acid, in cases of acute rheumatism, but simply lay before him the histories of six cases, without comments, to attest to the virtues of this remedy in this disease; only expressing the hope that others, may make use of the drug, and whether successful or not, report the results.

March 15th, 1876, E. B., age 20, German, domestic, stout, well built and nourished girl. Had been exposed while scrubbing the pavement. First attack; found upon examination, the joints of both knees and the right ankle, swollen, hot and exceedingly painful to both motion and pressure. No heart complication, no appetite, tongue slightly furred, bowels regular, pulse full, 110 per minute, temperature 101.5°. Gave the following:

℞ Salicylic acid ℈v.
Spts. Rect. q. s. faceie sol.
Glycerine ad. ℥v.

M. Sig: tablespoonful every hour until the whole amount has been taken.

March 16th, 1876. Has taken ten doses of the above. Has no pain in any of the effected parts, though they are still somewhat swollen, not at all painful under pressure or movement. Continued the acid dose three times daily.

March 17th. Found patient at her usual work.

April 12th, 1876, S .H., age 17, American, cooper, boy of fair build and well nourished. First attack: when seen had been in bed three days, exposed in a cold rain, while hauling hoop-poles from the river. No appetite, bowels constipated, no heart complication. Pulse 120 per minute, temperature 102°. Both knees and wrists badly swollen, and excessively painful. Gave oil ricini ℥j. to be followed after a free evacuation, by the foregoing prescription.

April 13th. The oil has operated well, and the acid has been administered as directed, can get in and out of bed easily, joints still swollen but not painful. Continued the acid grs x. ter die.

April 14th. Is much improved, treatment of the 13th, continued.

April 16th. Has gone to work.

July 1st, 1876, W. D., age 37, American, carpenter. Exposed by working in wet clothes. Third attack; temperature 99°, pulse 80. No heart complication, right wrist and left knee joints swollen, hot and painful, appetite impared, bowels regular, was suffering intensely. Gave by hypodermic injection, morph. sulph. gr$\frac{1}{3}$, to be followed by the prescription used in the above cases.

July 2nd. Somewhat improved; joints moved, but with some pain. 3rd. Some swelling but no pain in the effected joint. 4th. At work.

August 2nd, 1876, H. C., age 25, American, physician. Cause of attack unknown. Fifth attack; no heart complication, appetite good, bowels irregular, temperature 99°, pulse 65. Right wrist and elbow joints swollen, and very sensative. Gave salicylic acid in grs. x. doses until six doses had been taken. 3rd. Joints still swollen and somewhat painful. Gave acid grs. x. ter die. 4th. patient can write readily without pain.

November 18th, 1876, F. A. American. Found this child with right wrist and left knee joints swollen and painful. Temperature 102.5° pulse 124 per minute. Ordered salicylic acid grs. v. every hour until ten doses had been taken. 20th. Complains of no pain, joints not swollen.

November 20th, 1876, M. age 13, American. Exposed in a rain. Second attack; both knees and ankles implicated. Temperature 100°, pulse 98, no heart trouble, no appetite, bowels regular. Gave as in the first case. November 22nd. Considerably improved, continued grs. x. ter die. 24th. Up and out of doors. This patient about two weeks later, was again attacked, but the trouble yielded readily to the above treatment.

January 24th, 1877, F. H.. age 11, German. First attack; no heart trouble, ankles, knees and elbow joints affected. Some considerable febrile action, perfectly helpless, loss of appetite, etc. Gave salicylic acid in grs. x. doses. 25th. Has taken six doses, would allow the affected joints to be touched, could raise up, and help herself considerably. Continued treatment grs. x every three hours. 26th. Much improved, has been out of bed, and walks without pain. Continued acid three times daily. 28th. Is up and about.

The foregoing cases, are hastily and very incompletely reported, but still serve to show the remarkable effect of salicylic acid, to promptly afford relief. The only objection that can be urged, regarding its use, is its exceedingly unpleasant taste and the great difficulty of finding a solvent. It becomes a pasty mass rubbed up with borax, the combination being soluable in water, but the resulting solution becomes so intensely bitter after standing for an hour or two, that it is unfit to be used. The citrate of potash, has been reported as a good solvent, not effecting the virtue of the acid. It may also be dissolved in aqua ammon. and the resulting solution, be rendered neutral by the addition of acetic acid to which, syr. aurant. cort. or glycerine is added. But I have found that the form used as in the ℞. given in the first case, is as good as any of those mentioned, it may be made more palatable by the addition of four or five drops of the oil of cinnamon, or winter green. In administering this remedy according to the formula given it should not be mixed with water, as the addition of water caused the acid to be precipatated.

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ERRATA.

JASPER, IND., Feb. 26, 1877.

Editor of Lancet and Observer:

DEAR SIR—In the last JOURNAL my article on "Chronic Dysentery, topically treated," the following errors occur, which please correct in the next. On line ten read *away* before "carrying;" on line seventeen read *these* for "there;" on paragraph four, line four, read *timid* for "tired;" paragraph five, line five, Dr. Themin should be Dr. Thomas, and in line six same paragraph read *this* before purpose, instead of "the." I remain yours truly,

T. WERTZ.

Abstract.

An Abstract of Current Contributions to Neurological Matters.

Condensed by C. C. VANDERBECK, Phila., Pa.

NOISES IN THE EAR.—Dr. Michael, of Hamburg, recommends the use of nitrite of amyl in some cases of tinnitus aurium, "especially in the indurated forms of inflammation of the middle ear, and affections of the labyrinth," in which cases "relief by the ordinary means is not obtainable, or is but temporary." He was induced to use this drug "in consequence of its well known paralysing influence on the sympathetic, and especially on the nerves of the blood-vessels, and the fact that many forms of noises in the ear are not dependent upon mechanical causes, but upon the impression made by nervous irritation due to hyperæmia or anæmia of the brain or internal ear." Thirty-five cases were tested. In nineteen, marked relief was given, in eleven, no effect was produced, and "in three the noises completely disappeared from one ear and were diminished in the other." The mode of using the nitrite was by inhalation, ten drops being inhaled till the earliest toxic influences were observed, and was discontinued on the occurence of vertigo. "In all the cases that were improved, the noises during this period were increased, and diminished as the redness decreased, and then becoming much less than before." This improvement lasted from a few hours to several weeks. "At present it is not possible to indicate with precision the irritable cases." Acute catarrhs and affections due to mechanical causes "do not call for its employment. The doctor states that in anæmic young females the inhalations proved fruitless, though the noises completely disappeared on the commencement of redness of the face," to reappear as vigorously as ever when this had ceased. [*London Med. Times and Gazette*, Nov. 25, 1876.

PREVALENCE AND FATALITY OF NERVOUS DISEASES.—A very interesting series of diagrams have appeared in several numbers of the London Med. Times and Gazette, by Julius Althous, M. D., physician to the hospital for diseases of the nervous system, to show the "prevalence and fatality of nervous diseases." It seems from these reports that diseases of the brain are on the increase. The several diseases of the nervous system arranged according to their fatality give the following results:—convulsions, apoplexy, paralysis, cephalitis, epilepsy, insanity, delirium tremens, tetanus and chorea. The commonly received notion that diseases of the nervous system are more prevalent and fatal in the great center of social, professional and commercial life than in the rural districts is proved to be fallacious. The doctor "collected and compared the deaths from these diseases as they occurred respectively in London, the South-western countries and Wales for a quarter of a century." The death rate was found to be lowest in London, highest in Wales. From this he argues that "excess of manual labor is more exhaustive to the nervous system than excess of mental labor." He finds respiratory diseases to be just the reverse. Why the Welsh should be more prone to nervous diseases, he believes can be explained by *difference of race*,—that the nervous system of the Anglo-Saxon race has greater power of endurance and resistance to unfavorable influence than that of the Celtic race. He hints that this may be the explanation why the English, Americans and Germans, *i. e.*, Anglo-Saxons appear destined to rule the world.

EFFECT OF AGE ON FATALITY OF NERVOUS DISEASES.—The influence of age is considered by Dr. Althous to be greater than that of sex. It is found that "deaths from nervous diseases during the first lustrum of life" are "greater than all the succeeding ages taken together," "25,000 out of a total of 48,000." After this the ebb is low until thirty. "At thirty-five a rise is perceptible, which becomes large at sixty, and reaches its maximum at seventy". This second maximum, however, is only "the tenth part of the first maximum" —"25,000 against 25,000." The mortality in the first maximum is chiefly due to convulsions; in the second to apoplexy and paralysis. *Cephalitis* is more common in infancy. The first year being the fatal one. Death from *apoplexy* is "not uncommon in the first year of life." The minimum number of deaths from this cause is reached between ten and fifteen years; at thirty-five it is greater "and the maximum is reached at seventy." Comparing his results with Dr. Lidell's of New York. Shows that the maximum for apoplexy in New York is attained between sixty and seventy: from this he argues "a greater vitality in the English than in the American people in this respect. *Paralysis* carries off but few in early life, the number rises after twenty," a "sudden jump" after fifty-five, and a maximum at seventy. There are no deaths from *delirium tremens* "until after fifteen years of age." "At twenty there is a rise," and the maximum is attained at thirty-five. *Chorea* "appears most fatal between five and fifteen years of age." The first four years are entirely exempt, and only one case of death is recorded under five years. *Tetanus*, deaths are quite frequent in the first year, "in the second year a fall, and in the third a rise." The mortality under five years of age is altogether the greatest. "*Epilepsy* is very fatal in the first year, and altogether so in the first lustrum of life." The maximum is reached at twenty. *Insanity* carries off isolated cases as early as two years of age; the number gradually increases "in the subsequent periods." and more especially so between thirty-five and sixty-five. At the latter age the maximum is reached. "In *convulsions* the influence of age is strikingly apparent. The maximum begins at the very first year of life, the number of deaths "falls with greater rapidity in the second, third, fourth and fifth years, and reaches the summit in the first lustrum." "After that it falls with wonderful precipitation, and then rises again; during the subsequent periods of life, convulsions are only of very slight account in the mortality from nervous diseases.

A writer in the London Med. Times and Gazette, under the nom de plume of "practioner," refers to Dr. Stevens views of chorea, about which so much criticism has been elicited. Dr. Stevens, it will be remembered, teaches that the distuse of the nervous system by anomalous refraction, etc., acts in such a way as to *cause* chorea. The writer in question believes in the connexion of the two phenomena," "but would state that indistinct and double vision of a distressing kind is a *consequence* of irregular muscular action affecting the muscles of the eye, and one of the earliest symptoms of chorea and muscular tremor." Dr. Mitchell, in a late conversation expressed himself in somewhat similar language, as regards the error in Dr. Stevens' views of chorea, and he has instituted a vigorous examination of all the choreic cases applying to the nervous infirmary.

BROMOHYDRIC ACID.—Dr. Fothergill in the British Med. Journal reports that this drug prevents "the occurrence of headache after each dose of quinine, in those who before had to desist from taking quinine for that reason." He also claims that it will prevent "the fullness felt in the head by some persons, after doses of iron,"especially when central anemia is present. It is useful combined with quinine in cases of nervous exhaustion from excessive use of alcohol. To sum up, he has tried it with success in "hysterical conditions connected with ovarian excitement," "vomiting of pregnancy," "in all acts of reflex origin," menorrhagia associated with sexual excitement," mixed with spt. of chloroform and syr. of squills "a most agreeable and palatable cough mixture of no mean potency," and finally, "in gastric irritability." The doctor generally prescribes a half drachm.

BROMIDE OF CAMPHOR.—M. Bourneville has undertaken a series of experiments, to ascertain whether this drug really causes a lowering of temperature. He concluded that it does, "and under certain circumstances quite considerably.

BROMIDE OF ARSENIC FOR EPILEPSY.—Dr. Clemens, of Frankfort-on-the-Main, has used it for twenty years, and claims "astonishing results." He employes the solution and gives one or two drops in a glass of water, once or twice a day. These doses may be given for months and years; yet no symptoms of arsenical poisoning occur. He reports two perfect cases, and all his patients were much improved. The dose need not be increased as is necessary with the potash salt.

Proceedings of Societies.

PROCEEDINGS OF THE CINCINNATI MEDICAL SOCIETY.

Reported by P. ZENNER, M. D., Secretary.

Society met November 14th, 1876. The President, Dr. J. A. Murphy in the chair.

Dr. McKenzie reported the following case. A girl, aged 19, was admitted to the hospital October 28th. She had been sick ten days, and stated her illness had been pronounced typhoid fever. She was well nourished, temperature 100°, had diarrhœa, but no tympanitis, no gurgling or tenderness on pressure over the right iliac region, and there was no eruption. There was slight hebitude of of mind. She received paregoric to control the diarrhœa, and in two days appeared to be convalescent.

She had some fever on the nights preceding the 1st, and 2nd, of this month, and during his visit on the morning of the 2nd, received 15 grains of quinine. During the same morning her parents called to see her, and in their presence she was seized with a convulsion. From this she had mostly recovered, when she passed into a second convulsion and died. The autopsy revealed slight œdema of the lungs, also a lumbricus in the œsophagus. Otherwise all the organs were entirely healthy. The doctor considered the œdema of the lungs due to the convulsions. Whether the lumbricus was a causative agent in producing the convulsions it is difficult to say.

Dr. Comegys thought we could hardly refer the trouble to the worm in the œsophagus. Thought we should rather attribute death in this case to shock of mental origin, probably the emotions excited in the girl by the presence of her parents. In this case there was probably intense congestion of the nervous centers, especially the pons and medulla, causing first the convulsions, then cessation of the hearts action. It has been shown by the experiments of Bernard that shock makes its first impression on the brain, and through that influences the heart.

Dr. McKenzie thought that the immediate cause of death was apnœa from the congested and œdematous condition of the lungs. Also thought it quite probable that the worm was the immediate cause of the convulsion. There may have existed a hyperæsthetic condition of the nerve centres, such as was present in rabbits on whom Brown Sequard experimented, and in whom the slightest irritation would cause a convulsion.

Dr. Kearney thought it not improbable that the presence of the worm was intimately connected with the phenomena in the case. In children convulsions are often caused by slight irritation in the intestines, and in adults a hyperæsthetic condition may exist so that such a cause might induce convulsions.

Dr. Wm. Judkins spoke of a case of sudden death, mention of which had been made in the daily papers, in which he was called upon to make an autopsy. The case was a lady 21 years of age, who had grown rapidly obese, at time of death weighing 200 lbs. Six days ago while in the act of chastising a child she fell over and was found to be dead. On opening the thoracic cavity a large accumulation of fat was found beneath the sternum. On opening the pericardium it was found to contain several ounces of serum, with some blood, but no inflammatory products. In the walls of left ventricle, which were rather thin, a rent one-half inch in length was discovered. No clot of blood was observed but only a hasty examination was made. Dr. Comegys said he had asked the speaker about the presence of a blood-clot, because in all cases of rupture of the heart with which he was acquainted a notable blood-clot had been found as well as a quantity of serum in the pericardium.

Dr. Taylor read the following article which he had just translated from a German periodical.

At a meeting of the Leipzic Obstetrical Society, January 17th, 1876. Dr. Höder spoke of the use of salicylate of soda as an antipyretic in puerperal diseases. A large number of puerperal women having a febrile condition in the Leipzic lying-in Institute during the Winter 1875 were treated with the salicylate of soda. The remedy was given in 4-6 gramme doses dissolved in 40 grms. of fluid to which the patients made no objection. By such doses the temperature was reduced, and in remittent and intermittent cases prevented the elevation to any marked degree, if given several hours before the expected return of the fever. The subsidence of the temperature was accompanied by a copious perspiration, the fall being to or below normal temperature. Simultaneously the other febrile symptoms *i. e.* rapidity of pulse, headache, feeling of heat and depression disappeared.

The influence of the remedy was most manifest from 6 to 10 hours after administration, then the pulse and temperature advanced but for several days did not reach the former height. The first dose seemed most powerful, the second and third being less efficient. Accompanying its use in many cases, ringing in the ears and deafness were observed; in a few cases transient albuminuria occurred, vomiting never occurred, probably because of the great dilution of of the remedy, the appetite often improved, irritation of the fauces, diarrhœa or constipation were not complained of.

In commenting on the paper, *Dr. Meisner* said he had used the remedy satisfactorily in the fever accompanying inflamed mammæ and after tedious labor.

Dr. Fehling, said that in judging its effects we must distinguish between simple traumatic .fever and inflammation of connective tissue of the pelvis and peritonitis, in the first case the fever could be removed, in the second it returned after a time to its original height, in peritonitis no result followed its administration.

Prof. Crede endorsed the previous statements but specially directed attention to the greater mildness of the local manifestations, this was remarkable when the duration of convalescence was considered, formerly the patients remained a long time in the house, now they do so rarely, and when the local condition of the parts was compared, how much of these changes was due to the internal use and the local application of the salicylic acid he could not say.

Dr. Taylor also remarked that a statement was recently made that vaginal injections of salicylate of soda, one part to three hundred, in cases of puerperal fever were sufficient to reduce temperature, without the internal administration of the remedy.

Dr. Comegys said that a case of peritonitis had recently been under his care in which was demonstrated the power of salicylic acid to reduce temperature. The geneneral treatment of the case had been with opium and quinine, but the temperature continuing high, salicylic acid was administered in doses of 10 grains every three hours, with the effect of very soon reducing the fever and improving the general symptoms. But with the with-holding of the remedy the fever returned to its former intensity. A second administration of it was followed with a less reduction of temperature, and the case soon terminated fatally.

In another case of puerperal fever the same treatment was instituted and the fever seemed to be entirely controlled. Under a similar treatment a case of erysipelas was cured in a few days.

Dr. Carson said that last winter he treated three cases of acute pnuemonia with salicylic acid with the object of observing its effect on the temperature. In one case the temperature was 105°. In two cases there was a very decided reduction. but a few hours after stopping the remedy the temperature arose to its former height. He thought the salicylic acid had a more decided influence than either salicylate of soda or quinia in reducing exalted temperature, but it does not appear to effect the course of the disease. This brings up the question whether the mere reduction of temperature, the local inflammation continuing unabated, is of any benefit.

The administration of salicylic acid is followed by some of the subjective phenomena following large doses of quinia, such as tinnitus aurium. It is also frequently followed by profuse sweating. In the treatment of acute rheumatism salicylic acid appears to relieve the pain even more than it effects the objective symptoms, local swelling, fever, etc.

Dr. Hough asked what was the rational explanation of the action of this drug in reducing temperature.

Dr. Comegys said he used it as an antiseptic.

Dr. Murphy referring to the treatment of fever, more especially in peritonitis, remarked that treatment of elevated temperature *per se* was indicated only in those cases where it rose very high and threatened to paralize the heart or brain. In most cases of peritonitis which come under our care, for we seldom see acute general peritonitis, the temperature does not rise very high, and is not in itself dangerous, so that he does not see any indication for the use of salicylic acid. His treatment of peritonitis is opium to the point of narcosis.

Nov. 21st. Dr. Carson, was invited to-day by Dr. Kearns to see an autopsy in a coroner's case. The case was a man, apparently 50 years of age, who had been very dissipated. He was found in an unconscious condition and died four hours later. The prominent symptoms in the case were profound insensibility, slow breathing, slow and irregular pulse—can not say whether or not any paralysis — and excessive contraction of both pupils. The symptoms seemed to point to opium narcosis, but this suspicion was removed by the autopsy.

On examination of the brain there were found decided adhesions of dura-mater to the brain over the superior portions of the parietal lobes. There was also found a considerable extravasation of blood in the pons on both sides, but particularly on the left. There was no contusion, no evidence of a blow on the skull. The vessels at the base were mostly atheromatous and more or less filled with a soft plug.

In connection with this case the doctor mentioned another of a man aged 70 years, who had been suffering with cardiac disease. He was attacked with decided apoplectic symptoms, yet while decided these symptoms came on rather gradually. In this case there was complete closing of the basilar artery and softening of one side of the pons.

Dr. Murphy asked Dr. C. for his explanation of the contracted pupils in the first case.

Dr. Carson attributed this symptom to pressure on the nerve, as all the nerves arising from the neighborhood, of the 4th ventricle were pressed upon by the blood clot.

The doctor then mentioned another case illustrating the deceptiveness of symptoms. Last summer a steam-boat man came to his office complaining of the excessive heat, also of headache and general weariness, and asked to lie down. He lay on the lounge, no farther attention was paid to him. This was in the morning. In the afternoon he was found to be insensible. The pupils were very small. At that time some one mentioned having observed in the morning a dragging in one side in his gait. There was nothing in the history to indicate opium poisoning, and it was supposed that a lesion existed similar to that in the first case mentioned by Dr. C. The man died six hours after he was found in this condition with no variation of symptoms previous to his death.

Autopsy. Brain healthy. No evidence of poison in stomach.

There were granular kidneys, though the disease was not far advanced. An examination of the urine revealed the presence of albumen. The friends afterwards said that he had been apparently in fair health.

Dr. Comegys. In making his round in the hospital day before yesterday found a patient manifesting symptoms of great distress, and with great mental irritability. He complained of pains everywhere, but they were not very well defined. Temperature 103.5°. The right arm and leg were red, looking as in scarlet fever. There was some diarrhœa and tenderness in right iliac region. He appeared to be suffering with typhoid fever, but the case was as yet not very clear. Ordered quinia grs. x to xv in divided doses daily. The urine was not examined. The doctor did not see patient again, as on his visit two days later he learned that the patient had died the night before, apparently of exhaustion.

Recalling the symptoms of the case he was impressed with the very irritable condition of the patient, his constant fretting. He could recall only one similar case. It was that of a patient suffering with jaundice—catarrhal jaundice apparently. He appeared to be getting along very well, but one day he was called to see him, found him very much worse. He was fretting constantly, sometimes crying out loudly. He had not passed urine in 24 hours. He soon passed into convulsions and died. The doctor considered this case as one of uræmic poisoning. No post mortem was held.

Recalling this case, Dr. C. requested the *interne* to procure some of the man's urine at the autopsy, as he expected to find evidences of uræmia.

Dr. Dandridge said he made the post mortem in this case. A large part of the trunk and extremities were found to have a very red color. Lungs healthy. Heart somewhat dilated and flabby. Right side filled with a clot. No valvular disease. Liver was larger than usual with points of fatty degeneration. Spleen was enlarged and softened, and contained an encapsulated calcarious mass, probably of long standing, and the result of an embolism. Small intestines were injected over their peritoneal surface. Peyer's patches enlarged, projecting somewhat above the general surface of the mucous membrane, but not ulcerated. Mesenteric glands enlarged. Kidneys, fatty degeneration well marked, but not excessive. There was some extravasation of blood beneath the peritoneum, also within the scalp. The doctor thought this a case of typhoid fever in its early stages: thought also that the damaged condition of the kidneys had affected the heart.

Dr. Comegys. A man was brought to the hospital about two weeks ago in the early stages of acute mania. He had been watching with a relative suffering with typhoid fever, and seemed to have been broken down. He was subject to both delusions and hallucinations. He had a notion that he was filled with foul gases and wanted to be pumped out and relieved in that way. He had not slept for some time. With the use of choral sleep, was procured, but it did not cause any abatement of the symptoms.

Bromide of potash was then administered, would produce sleep but in waking hours patient became constantly wilder, became in fact furious, cursing every body. Ice bags to the head and nape of the neck for 24 hours did not produce abatement of symptoms. He was now placed in a bath, temperature 75°, and allowed to remain in it 15 minutes. He slept quietly for a few hours afterwards, but awoke in same condition. The baths were ordered to be repeated, and 50 grs. of bromide of potash were administered four times daily. The case continued the same. Day before yesterday 15 grs. quinia were ordered to be given four times daily in addition to cold baths. Yesterday at 6 A. M. he seemed to be entirely restored, was quiet and took food freely. The doctor thinks that the cold baths and quinia were of much benefit, but that no good was obtained by the bromide of potash. There had been no fever in the case.

Dr. Stanton thought we would generally be disappointed in the use of bromide of potash in acute mania. He has tried the remedy in a number cases but has seldom seen any good effects from it.

Dr. A. M. Brown mentioned two cases of sunstroke which came under his charge on the same day last summer, in which was illustrated the great value of salicylic acid in reducing temperature.

In the first, there was a temperature of 107° when the patient was first seen. He was delirious and restless but not comatose. He was given 15 grs. salicylic acid every ½ hour. In two hours his temperature was 105°. Three hours later (7 P. M.) temperature 102°, and patient conscious. Salicylic acid was administered less frequently during the night and the next morning the patient was all right. He had suffered a similar attack five years before.

The same evening the doctor saw another case of sunstroke, temperature 104°, 15 grs. of salicylic acid every two hours were administered, and patient was all right the next morning. The doctor prescribed the salicylic acid in a solution with acetate of potash, glycerine and water.

Dr. Murphy gave the history of two cases of aphasia. The first came under his charge seven years ago, and was at that time reported to the academy of medicine. He saw the patient again today. The case was a woman 27 years of age. When she had been married nine months, and while in the sixth month of pregnancy, she began to suffer with headache and had anasarca of the lower extremities. A few months later she was called to the city to see her dying mother. During the trip to the city she suffered with excruciating pains in the head, and on the morning after her arrival here while in the act of dressing she suddenly cried out and went into convulsions. Four days later she was delivered of a fœtus at 8 months. She was profoundly unconscious at the time, and continued so until two days afterward when she became conscious.

Three days later after eating a light breakfast, while talking to her husband, she suddenly threw her hand to her head and became speechless. Dr. M. saw her an hour later; she could not speak except to make unintelligible sounds, and was paralyzed on the right side. The patient continued for some time under the doctor's care, during which time there was some improvement in the symptoms. Since that time the patient has consulted some of the most prominent of European physicians. They have agreed with Dr. M. in his diagnosis. Embolism in the left side of the brain.

At the present time she talks with considerable facility, though occasionally pauses before pronouncing a word. She has gained flesh. The right hand is useless. The sensibility in this hand was impaired in the beginning, but soon became normal.

The second case, a lady, rose in the morning and in a few minutes was heard by her husband making a peculiar cry and found her leaning against the bureau and aphasic. Dr. M. saw her a few days later. She was very emotional. She said in the language of the deaf and dumb, with which she was conversant, that she was going to die. After observing her carefully for a week Dr. M. came to the conclusion that there was no organic disease. She had been in a dark room, but five days after he saw her he ordered her to be taken out of her room, and a few days later to be brought to the city. While in the act of packing her trunk and in the doctor's presence, she suddenly addressed her servant in distinct terms, then looked at the doctor, and did not utter another word for a week. She now speaks well, though she sometimes hesitates for a word. In writing she often omits letters necessary to the sound of the word. He considered this a case of hysterical aphasia.

Dr. Comegys saw Dr. M's. 2nd case. He thought that there was no coarse lesion in the case. There was no paralysis of motion or sensation, no impairment of memory. He thought the case could be explained by the term 'shock,' meaning by the term such an influence as may have disturbed the molecular condition of the nervous centers, a change that could not be revealed by the microscope, and yet sufficient to destroy functions. The doctor mentioned three cases of temporary aphasia following injuries to the head, in which there was no paralysis or other symptoms of coarse lesions.

Dr. McKenzie said he wished to give the history of a case in connection with the first one mentioned by Dr. Murphy. The patient came under his observation last September, in the hospital. A woman, aged 19, had been delivered two weeks previously. Four days after delivery she was seized with a left hemiplegia. She was not unconscious, nor was there a loss of sensibility at any time. Heart and urine are normal. Left side is paralyzed, but there is a slight motion of the leg. Dr. Aub made an ophthalmoscopic examination and found congestion of the optic discs in both eyes.

The doctor considered this a case of embolism of the right middle cerebral artery. The woman is too young to suppose any disease of the arteries, resulting in hemorrhage or brain softening. And there is no evidence of syphilis, and no indication of brain tumor.

PROCEEDINGS OF CLARK COUNTY MEDICAL SOCIETY DEC. 14th, 1876.

Reported by I. KAY, M. D., Secretary.

Ninth Session of the Twenty-sixth Year.

The above named Society held its regular meeting for January, Thursday, the 11th, the President, Dr. Wm. H. Reeves, in the chair. Members present, Drs. Banwell, Bryant, Buckingham, Carroll, Driscol, Kay, Potter, Reddish, Reeves. Rice and Totten.

Dr. Kay, as Secretary of the Society, stated that the regular subject for consideration to-day was Fractures of the Cranium, and that the discussion was to have been led off by a paper from Dr. Whitehead, who had had some recent experience in the treatment of an interesting case of the kind. He regretted that Dr. W. could not be present on this occasion to act his part, but he thought that the society had better proceed with the subject nevertheless. Having seen Dr. Whitehead's case in consultation, he would, in the absence of the full report looked for, allude to one or two of its salient points. The patient was a strong, healthy lad, about fifteen or sixteen years of age, who had been kicked by a horse, breaking in a portion of the skull, extending from the zygomatic process of the frontal bone to the posterior portion of the temporal bone depressing the whole squamous portion of the last named bone for more than the eighth of an inch. The usual symptoms arising from the shock of such a violent force against the head were nearly all present, such as nervous prostration, temporary unconsciousness, labored respiration, etc. Upon waiting for reaction, however, and using the proper derivatives, the boy began to recover so steadily, and in a few days so thoroughly, that it was thought best not to use the trephine and elevator. The patient has fully recovered. Upon this point there might have been quite a difference of opinion between consulting surgeons—namely: as to whether trephining should always be resorted to in depression of a cranial bone, regardless of whether there were any symptoms of compression of the brain. Dr. K. remarked that the case just alluded to, of Dr. Whitehead's, belonged to a class of injuries highly important to the surgeon. The dangers which almost always accompanied such accidents were well calculated to fill the minds of medical attendants and friends with anxiety and fearful forebodings as to the result. In injuries of the head, it was not so much the wounding of the scalp or fracture of the bones which gave them their importance, as the effects which these accidents produced upon the brain. Hence it was the custom with nearly all lecturers and writers upon systematic surgery, to treat of broken cranial bones, not under the head of fractures at all, but in a special section or chapter devoted exclusively to injuries of the head. This arrangement was well, inasmuch as it was more apt to give due prominence to the cerebral complications which were so generally connected with fractures of the skull. The presence or absence of concussion or depression of the brain, determined to a great extent the whole conduct of the surgeon in regard to treatment of these injuries. In ordinary fractures, occurring in other parts of the human frame, the rules of management were comparatively simple, and somewhat fixed and uniform in their nature, but in fracture of the cranium, each individual case had peculiarities of its own; and the mere adjustment of the broken pieces of bone oftentimes constituted the least important part of treatment. Due attention had to be given to the various principles underlying the different forms of cerebral affections, attending the accidents, chief among which might be mentioned concussion, depression, irritation and inflammation. Thus, it could readily be seen that each case of this kind, falling under the surgeon's care should, at the time, become a special study, in which studious examination there would necessarily pass under review, many of the important elementary principles of surgical science. But among the rules for guidance in these cases may be mentioned the one requiring the use of the trephine and elevator in a depressed bone from fracture of the cranium, connected with marked and persistent symptoms of compression of the brain. Where the depression is slight and symptoms of compression absent the patient should not be submitted to so grave and capital an operation for what imagined benefits it might possibly secure.

Dr. Totten referred to the rule laid down by Prof. Mussey in such cases. Unmistakable evidence of depression of bone calls urgently for its elevation.

Dr. Ewing thought that in depression we should have also very decided brain complications such as compression, etc., before operating. Dr. E. gave his own experience with fractures of the skull and concussion of the brain. He recollected one case occurring fifteen years ago, where a boy had his head almost flattened by a saw-log running over him and yet he recovered entirely without a surgical operation. Other cases, however, requires that the bones should be elevated and spiculæ removed, as a protection to the brain. He had also witnessed the ravages of inflammation and suppuration in some of his cases, leading on rapidly to a fatal termination. In one case, notwithstanding a terrible splintering of the parietal bone, there was but little cerebral disturbance.

Dr. Buckingham acted upon the principle that where there was marked depression and consequent danger from epilepsy resultant, an operation was called for. This, however, would not always save the patients, for he had seen them die after trephining had been performed, and he had seen them live when the operation had been omitted. Dr. B. referred to the wonderful tenacity of life which sometimes obtained in those terrific head injuries, and illustrated his point very forcibly by an illusion to the case of Mr. Gladfelter, of the West End, whose cranium was ripped open by a circular saw cutting transversely across the top of the head and penetrating three inches into the substance of the brain, cutting the longitudinal sinuses of that organ, and yet he lived five days in that mutilated condition. Dr. B. enlarged upon the prime importance of the exercise of good common sense in the management of these injuries, and in fact of all other injuries. Without this sterling qualification, a physician's and surgeon's efforts to do good will not amount to much.

Dr. Potter related a case in point where a young man twenty-two years of age had been kicked by a horse, resulting in an extensive fracture of the left portion of the forehead. He found the patient laboring under all the symptoms of compression. He cut down through the scalp, set the trephine on the sound bone, took out the circular piece of bone, and raised the depressed fragments with an elevator. All symptoms of depression, such as dilated pupils, stertorous breathing and unconsciousness immediately disappeared and the patient rapidly recovered. Of course certain cardinal principles of practice, which he had not time to enumerate, should be observed in this department of surgery.

Dr. Rice described one or two instances in which he had witnessed fractures of the skull, and he subscribed fully to the rule laid down by Dr. Mussey in such cases. He knew of one sad case in which an omission to adopt this rule had resulted in much harm.

Dr. Reeves gave the particulars of a case in which a boy twelve years old had sustained a severe fracture involving the superciliary ridge and the external plate of the frontal bone, in which there was retching and other evidence of serious brain injury. There was no compression however as the internal plate was most probably undisturbed. There was profuse hemorrhage. Dr. R. referred to the importance of understanding the anatomical structure of the parts implicated. Trephine only when you are certain that you are right. It should only be done where there is the most indubitable evidence of its necessity. Where the depression is considerable, or when there are spiculæ of bone projecting towards the brain or like conditions, the operation would be allowable. Much had been said to-day about epilepsy as a result of fracture of the cranium. It was very seldom that this disease followed these accidents unless there had been a previous inclination to the affection, such as a hereditary proclivity. He had noted in his professional experience seven well marked cases of depression of the cranial bones in which there was no epilepsy. Dr. R. mentioned quite a number of cases, and called especial attention to a discovery which he had made in regard to the connection existing between anæsthesia and brain motion. The former diminishes and almost entirely suspends the latter.

Dr. Rodgers would add to the two prominent qualifications of a practitioner of the healing art one more particular, so that they would stand as follows: 1st, Common sense; 2d. Knowledge of the best authorities; and 3d. One's own experience. He gave an account of a boy not long since who had sustained a fracture of the skull from the falling of a quoit, and depression of the outer table. The patient did well. This showed that it is not always necessary to trephine in all cases of depression. There is not much danger to be apprehended from spiculæ of bone unless their presence can be clearly shown. It would not be best to trephine upon the mere presumption that such spiculæ may exist. Epilepsy might be one proof of their existence. We best know the seat of the injury by the condition of the outer table of the bone. Unless we are clearly satisfied that the inner table is injured, no doubt need be entertained as to the propriety of omitting the trephine, unless for the removal of effused blood between the calvarium and the cerebral substance.

Dr. Bryant looked upon the pathology of brain injuries as somewhat complicated and often obscure. When we come to take into the field of our view, the wonderful structure of the brain, we are not surprised that there should oftentimes be this complexity in relation to brain lesions. Concussion, compression, congestion and apoplexy are all conditions that are brought to the surgeon's notice. Most of them demand active and prompt treatment, such as venesection, derivatives and such like remedies. He had seen one case of the kind under discussion, in which veratria had been used with but little benefit, but where vegetable and mineral tonics were resorted to with profit. When a depressed bone can be easily raised, it is rather safer practice to do so although cerebral troubles may not be very decided. As had been remarked here several times before, common sense is a useful commodity to have on hand, by a practitioner who proposes to deal much in surgery. Whilst admiring it, he with Lincoln, often regretted that it was such a rare bird. The brain disturbances may require the use of the trephine immediately; at other times the surgeon can afford to wait, and should wait Some have pretended the ability of diagnosing the precise spot in the brain, where its diseased action gives rise to epilepsy; and consequently the exact knowledge as to where to set the trephine in operating for such a malady, depending upon surgical causes. Dr. Bryant then spoke of the modification in shape and thickness accruing to the bones of the skull, as in other bones, during the process of repair, such as the formation of callous, which might impinge upon the brain, long after the time of the fracture.

After hearing an interesting report from Dr. Rodgers upon diptheritic croup, the Society adjourned to meet again on the second Thursday in February.

PROCEEDINGS OF THE MEDICAL ASSOCIATION OF DELAWARE COUNTY.

Reported by F. W. MORRISON, M. D., Secretary.

The Society met Dec. 12th, Dr. Welch in the chair.

Dr. Welch reported the case of Mr. J———, who was thrown from a wagon, lighting on his shoulders and neck—producing a shock to the spinal cord, causing paralysis from the axillæ down, with partial paralysis of the arms, his mind is clear, there is paroxysmal pains in his hands, applied mustard to the limbs and gave a cathartic—thinks the case will have an unfavorable termination and that likely very soon. Dr. Hyatt suggested that topical blood letting, cathartics and opium or counter-irritation in some form with opium followed by strychnia, a proper course of treatment.

Dr. Williams—from the history of the case, I would not use strychnia, while active irritation of the spinal cord is made apparent by pain, cramp or muscular twitchings.

The subject of vaccination and variola was next introduced under the following headings:

First, when are patients most likely to spread infection?

Dr. Hills has known variola to be communicated during the stage of primary fever.

Dr. Vanderman: there never is small-pox until the pox appears and pustules. I have seen it in all its stages, no less than eighteen hundred cases, as to medication in variola, the less medicine the better; more medicine *more funerals*.

Dr. Hyatt, the period of infection is not settled, but it is from first forms of pimples to maturation.

Dr. Little, small-pox is not contagious at incipiency.

Dr. Blymyer—from my experience, I have not found variola as contagious as generally reported, have had considerable experience, in treating this disease, and had it once myself.

Dr. White related two cases of infection during primary fever and thinks infection possible during incubation.

Dr. McIntire has treated six cases of small-pox, in one of these there was infection during incubation.

Dr. Hills, is satisfied from experience of its contagiousness in its incipiency, and is in favor of guarded measures at once, and the facts prove their efficacy, there are not sanitary measures sufficient.

Dr. Potter—contagion is at its highest during pustulation and clings to the patient for many days after death.

Second, can varioloid give rise to true small-pox?

Dr. Little—the poison is the same whether of varioloid or small-pox.

Third, is vaccine virus as good now as when it was first produced?

Dr. Little I consider it as good as ever, (other members expressed the same opinion).

Fourth, does re-vaccination give greater security?

Dr. Welch, one vaccination will do a lifetime if thoroughly done.

Dr. McCann—the influence of vaccine matter does run out, and re-vaccination is necessary.

Dr. Williams, does not think its influence ever entirely destroyed.

Dr. Hills, once thoroughly taken is good for a life time. I never had a second vaccination in my own case. I often think the manner in which it is performed, or the matter is defective, hence failure in vaccination, would advise successive vaccination.

Dr. Potter said: "he was vaccinated nearly fifty years ago, when thirteen years of age, re-vaccination of no use since that time."

Dr. McIntire related a case of fracture of the neck of the femur within the capsular ligament in a lady seventy years of age, of a good constitution; the injury was caused by a fall from a wagon, the patient lighting heavily on her feet, he applied Dessaults apparatus, so as to be in harmony with good authority; kept the limb in splints one month, complete recovery took place, in six months from date of injury, was certain of this being an intra-capsular fracture, there being crepitus, eversion, at the time of the injury and inability to move the limb, with subsequent shortening.

Dr. Williams remarked that it is a matter of great difficulty to make a correct diagnosis in fracture of the hip-joint, and would not undertake to treat a case without a consulting surgeon of experience in such injuries.

Dr. White thinks a correct diagnosis not easy and could refer if necessary to a case where a mistake occurred, union within the capsular ligament rarely ever takes place owing to anatomical and other causes.

Dr. Blymyer—it is not so difficult to tell or treat a case of fracture or dislocation of this joint, neither does he believe it necessary to go abroad for a consulting surgeon, Delaware can furnish as good as any. These great men from a distance, when you get them here do not know more than we do, its all nonsense to send away for surgeons, this he found out by experience.

Dr. Vogt relates two cases of intra-capsular fracture in old persons, in both instances the patients were subsequently unable to walk without a crutch. There was no shortening when the injuries were first received, and very little afterwards.

Dr. Cummins, reported three cases of extra-capsular fracture of the femur, one a woman forty-two years of age who received the injury in falling from a ladder. The remaining two cases were men between forty-two and forty-five years of age; treatment with the long splint, all recovered with useful limbs, have seen cases recover from this fracture and have as good limbs as before, does not think it difficult to diagnose these fractures after having seen one, neither does he believe cases of this kind so hard to treat as is frequently represented.

Dr. Hyatt, speaking of injuries of this joint, other than fractures, we might refer to coxal arthritis which may terminate in resolution or it may proceed rapidly to effusion, with rupture and ulceration of the capsule and destruction of the whole interior of the joint. This is characteristic of femoral ostitis, hip disease is an inflammatory lesion and whatever laws govern the progress, and management of such lesions elsewhere are applicable here, as rest, position and hygiene. When suppuration, caries or necrosis occurs, delay is necessary until nature has removed the decomposed structures, which may be assisted or hastened by proper surgical interference. In the treatment it is necessary to secure proper position to the joint. (Here the doctor refered to fractures of the neck of the femur and gave a differential diagnosis between this fracture and dislocations at this point). In the treatment of intra and extra-capsular fracture he believes in the teachings of Sir Astley Cooper—to prevent the patient from becoming bed-ridden or sinking under protracted confinement—was to get him upon crutches as soon as possible, and to accomplish this object he would employ Sayre's hip splint, which is either applicable in *morbus coxarius*, or fracture of the neck of the femur. He thought it would be better in many cases to disregard the fracture leaving the patient for a time in whatever position was found to be most comfortable. He then referred to a case of fracture of the femur in a child where he neither used extension or counter-extension, also referred to the case of Dr. Hill's who received a fracture of the tibia and fibula and used no appliances.

Dr. Turney, treated cases of fracture of the neck of the femur in which it was difficult to tell whether intra or extra-capsular, most of his cases died within six months, from direct irritation and from age. Reports a case of fracture of the thigh in an old lady, where no bony union took place; at the end of eighteen months sawed off the ends of the bones, but there is no union up to the present time, the fracture having occurred two years ago.

Dr. Hill, relates his own case of fractures of the tibia and fibula just above the ankle—he was on a journey at the time—adjusted the parts and made no appliances; there was heat and swelling—to control this kept the parts bathed, on the eighth day applied a starch bandage, on the tenth day started for home by rail and coach and rode quite easy, on the twelfth day was actively engaged attending to his affairs at home with very little disturbance from the fracture.

Think that union within the capsular ligament is very rare in fracture of the neck of the femur, the neck being absorbed because the reparative powers are feeble Union by ligament generally takes place and leaves the limb much shorter or much everted; the patient is unable to walk without a cane or crutch.

Dr. Hyatt, reported a recent case of gun-shot wound, the man was out hunting when his gun accidentally discharged, fracturing the left thumb and passing upward, struck the superior orbital plate of the right eye, the bullet lodging posterior to this against the orbital plate, where it was extracted, having destroyed the globe of the eye, as a rule his intellect is clear, and no appearance of shock; for the first few days pulse 48 to 50, a little intermittent, for the past twenty-four hours as high as fifty-four but not regular, normal pulse from 70 to 75. The cavity discharges pus; no signs of fracture could be discovered. The peculiar feature in this case is, how to account for the slow pulse.

Discussion on this report by different members after which the association adjourned.

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Translations.

By H. ILLOWY, M. D., Cin., O.

Bromide of Potassium as a Caustic.

At the last meeting of the French Association for the advancement of science at Clermont-Ferrand, M. Peyraud, of Libourne, read a paper entitled "The caustic properties of Bromide of Potassium and its employment as an external agent." In 1872, M. Peyraud, in making some hypodermic injections of a concentrated solution of bromide of potassium on a rabbit, discovered soon after, that the portion of the skin that was impressed by the agent became desiccated after several days, tanned and was eliminated. After a few days the tissues had lost their vitality. M. Peyraud basing himself on an experiment of Dr. See, attributed this phenomenon to a gangrene from anæmia brought about by the arrest of the capillary circulation in the parts touched by the solution. M. Peyraud then had the idea that advantage might be taken of the escharotic properties of this bromide to destroy certain malignant tumors either by injecting a concentrated solution or by first denuding the surface and then applying the bromide in powder to it. .The bromide acts only on the denuded or ulcerated surface; it does not effect the parts covered by healthy integument, no matter how long it remains in contact with it. It can therefore be applied in excess without hurting the sound tissues, its action being only on the diseased parts.

It was not till 1874 that M. Peyraud had the opportunity to make the first therapeutic application of this discovery. In twenty-eight days, by the daily application of the powdered bromide of potassium, he destroyed to the very pedicle a fungoid cancroidal mass that had invaded two thirds of the face.

M. Besnier, several months afterwards confirmed this fact by curing with the pulverized bromide of potassium, a patient affected with hypertrophic lichen of the leg for which amputation at the thigh was at one time thought necessary.

Since then M. Peyraud has continued his researches on the external use of the bromide of potassium, in powder, in solution, in glycerine, in pomade. With the powder he cures cancroids, provided they be not too extensive. The application at times, according to the seat of the disease, may be very painful, especially if the cancroid be somewhat extensive. The eschar formed by the powder has the thickness of a two-franc piece; it is not produced immediately, it is only after twenty-four hours that it appears; it is semi-transparent if the wound does not bleed. It also seems that the wound upon which it rests is diminished in extent, one would say that it shrivelled. This eschar is rapidly eliminated.

Where the bromide of potassium displays really remarkable qualities is in the dandriff of old people. M. Peyrand cites a dozen cases of cure of dandriff by the application of the bromide of potassium either in powder or in pomade.

℞. Potass. bromide, ʒj.
Pomade limacon.* ʒv.
M.

In two cases of atonic ulcers of the leg M. Peyraud had very good succeed with the bromide in glycerine.

℞. Glycerine, pur. ʒxxv.
Potass. Bromid. ʒijss.
M.

M. Besnier also cured atonic ulcer with this remedy, but employed it in the form of powder.

That which is remarkable in this treatment is the rapidity of the cicatrisation after the fall of the eschar.

M. Peyraud uses the same formula in the treatment of obstinate chronic eczemas, in pityriasis and in a general manner in all dartrous affections. In granulations of the cervix he introduces a tampon, steeped in this glycerine mixture. Every day or every second day. In the very grave cases of ulcerations and vegetative affections of this organ, M. Peyraud, insufflates directly upon the neck the bromide in powder by means of a long glass tube and then applies a tampon of dry charpie. In all cases the bromide acted marvellously.

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* Limaces. A snail.

M. Peyraud then cited a case of lachrymal tumor cured by the daily instillation of a small pinch of the powder of potass. bromid. into the internal angle of the eye. The tears charged with the salt sufficed to modify the tumor, it hardened gradually and then disappeared. In conjunction with M. Besnier, Dr. Peyraud cured a non-ulcerated lupus. The lupus was first attacked with a vesicatory then the powder was dusted upon the denuded surface; the patient suffered but very little. M. Besnier has since cured with it several cases of lupus.

In pomade and in glycerine the bromide aborted the pustules of acne. Applied in pomade to erysipelatous swellings it often arrests the inflammation or attenuates it considerably.

M. Peyraud also added, that it may perhaps possess resolvent properties in phlegmonous, or general surgical inflammations. If there be no other way of application than on the skin, it arrests or diminishes, the capillary circulation. Lastly M. Peyraud has successfully used solutions more or less concentrated of bromide in the following maladies:

Five grammes* to 60 (of water) in phagedenic chancre, in indurated chancre and for mucous patches. As a collutorium against the vomitings of phthisical patients; for dyphtheritic pharyngitis, in ulcerative stomatitis and in granulations of the pharynx—10 grammes to 500 as an abortive in simple or pultaceous tonsillitis, in ulcerative stomatitis, in ozæna—5 grammes to 120 in blennorrhagia —10 grammes to 200, in powder, for chronic laryngitis.

Lastly 10 grammes to 500 in obstinate epistaxis as a local hæmostatic. As a general hæmostatic the bromide in large doses possesses marked advantages. M. Peyraud cites several cases of hæmoptysis and metrorrhagia which neither ergot, nor the perchloride of iron, nor rhatany could arrest, in which the bromide rapidly had the desired effect. This last, adds M. Peyraud, should show with what care the bromide should be administered at the menstrual epoch.—[*Progr. Medical*, 36.

INFANTILE DIARRHŒA.

The prevalence (during the Summer) of intestinal troubles among children, induces us to publish the following formula which may perhaps be of some service.

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*1 gramme—15½ grs.

1 *Chalk Powder*, (Kuchenmeister).

℞ Calcis. carbonat. grs. ix.
Calcis. phosphat. grs. ivss.
Sacch. lact. grs. xv.

M. Make one package—In diarrhœa one on two of the packages are given—administered (each powder) in one, two or three doses according to the age of the child.

2 *Columbo Potion* (Hanner).

℞. Columbo (broken), grs. ivss to xv.
Aqu. ʒxijss.

Let it boil for a moment, then remove, strain and add syrup of bitter orange peel ʒiv. M.

Useful especially in the atonic diarrhœa of infants—dose a tablespoonful.

3 *Tisan of Cocoa.*

℞. Cocoa (broken). ʒij.
Boiling water, Oij.

Let it steep for an hour, then filter.

If the diarrhœa be complicated with a bilious state of the tongue, nausea and vomiting, the syrup of ipecac will be found advantageous, either alone; or with a greater or less quantity of ipecac super-added, according to the age of the infant. Here the formula of Dr. Chouppe:

℞. Ipecac root (broken), ʒijss.
Aqu. ℥iij.

Let it boil till reduced to ʒvijss.—filter this first decoction; then take the same ipecac and repeat the process. Mix the products of these two decoctions and add five to ten drops of Sydenham's laudanum.

We must remind our readers that great care must be had in the use of laudanum with young children.

As a drink albuminous water may be given which the children take very easily—here is the formula for it:

℞. Albumen ovi. no. iv.
Aqu. O. ij.
*Hydrolat. flor. aurantii, ʒvijss.

M.—It may be sweetened with sugar, simple syrup, or syrup of ginger.—[*Progr. Medic.* 34.

Lead Colic—Electuary of Sulphur, (Lutz).

℞ Sulphur (sublimated and washed), ℥iv. grs. xviij.
Honey (white), ℥iv. grs. xviij.

M. For three successive days, ℥j. ʒv. of this electuary is administered to combat the colic, then gradually decreasing doses are given—from the third day, the violent pain of the saturnine colic has disappeared. The dejections are dark and contain the sulphuret of lead, as M. Lutz has assured himself by chemical analysis. The electuary of sulphur is a better remedy than that of La charite as it provokes the expulsion of all the toxic metal existing in the economy.—*Progr. Med.* 44.

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* HYDROLATS. A watery solution of the active principles of any remedial agent prepared by distillation.

Mixture for nervous insomnia, (Graves).

℞

$$\left.\begin{array}{l}\text{Tincture of columbo,}\\ \text{Tincture of quassia,}\\ \text{Tincture of gentian,}\\ \text{Tincture of cinchona,}\end{array}\right\}\text{ ää ʒviij.}$$

Muriate of morphia $\frac{3}{4}$ to $\frac{1}{4}$ gr.

M. Three table-spoonfuls a day, in a half cup of tea, one hour before the evening meal to arrest the nausea and appease the nervous irritability and bring about sleep, particularly in persons who have committed alcoholic excesses—in certain cases lukewarm douches are a useful adjuvant. (D. C. F.)—[*Progr. Med.*

AN EASY METHOD OF REMOVING THE MUCOUS ADHERING TO THE CERVIX UTERI.

All our colleagues, engaged in the treatment of the diesases of women, know how difficult it is very often to thoroughly cleanse the uterine orifice and remove the adherent mucous, viscous, tenacious and characteristic of certain forms of catarrh. For several years we have vainly sought from the chemists, an innocuous substance, miscible or emulsive with the mucous, and which would rapidly cleanse the orifice and cul-de-sacs. I tried several things but as usual the simplest idea occurs to us last.—Dip a brush of charpie into the yolk of a fresh egg, mix with the mucous and then throw a little water once or twice (as necessary) into the speculum, constantly stirring with the brush; after having allowed the liquid to run out, dry the cervix. It will then be found thoroughly freed from all secretions.—[*Prog. Medic.*, 29.

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Bi-Monthly Abstract.

An Abstract of Current Contributions to Obstetrics, Gynecology and Diseases of Children.

Condensed by EDWARD B. STEVENS, M. D.,

Prof. of Materia Medica in the Syracuse University, New York.

HEMORRHAGE FROM THE FUNIS.—H. Cripps Lawrence, F. R. C. P., London, makes some practical and sensible suggestions: The expressions umbilical hemorrhage, and hemorrhage from the funis, though often employed synonymously, differ manifestly in signification.

Hemorrhage from the funis is essentially a primary form of hemorrhage, while umbilical hemorrhage is virtually a secondary form.

The distinction is an important one for several reasons, not the least being this practical one, that whereas the umbilical form of hemorrhage is frequently a serious and sometimes a fatal malady, hemorrhage from the funis is if properly dealt with, an easily controlled affection.

The differential diagnosis between the two is also important, to avoid the error ot overlooking the existence of an umbilical hemorrhage on the one hand, and on the other of attributing a hemorrhage, which has proved or may prove fatal, to an umbilical source, when in reality the hemorrhage has occurred owing to an insufficient treatment of the recently divided funis.

As regards the *causation* of hemorrhage from the recently divided funis, it may be noted first that a rare variety, described by Dr. Dewees, sometimes arises from rupture or ulceration of one of the varicose dilatations of the umbilical vein; and of this it may now be stated that the hemorrhage occurs at the side of the funis, and for its arrest a ligature should be applied below the site of hemorrhage.

With this exception, the causes of hemorrhage from the funis may be said to include imperfect application of the ligature; improper handling of the ligature or end of the funis by unskilled hands; imperfect and hence improper material employed as a ligature. Next to these, oozing of the whartonian jelly from the ligatured end of the funis; laceration of the funis during sudden labor, or by force applied to it after delivery; inefficient mechanical laceration.

The above include avoidable difficulties, if the unusual laceration which has attended sudden labor in the upright position be excepted. A special line of demarcation should be drawn between such cases and those more serious forms of hemorrhage which are in reality connected with some affection of the umbilicus. For practical purposes the funis may be said to present two typical forms. One variety is the broad, thick funis, distended with Whartonian jelly, twisted and feebly pulsating. The second form of funis is thin, flaccid, less tortuous, and somewhat feebly pulsates, being but little distended with the Whartonian fluid.

In the thick form of funis the whartonian jelly, in surrounding and protecting, also supports and exerts some pressure upon the umbilical vessels passing through the funis.

When a thick funis has been ligatured the vessels appear, after division of the cord, fully secured; for they are comparatively small owing to the support and pressure exercised by the whartonian jelly; hence they do not at once attempt to bleed, but it is after a few minutes that hemorrhage may and often does occur.

Hemorrhage from the end of such a funis, recently ligatured and divided, arises from three causes; first the Whartonian jelly begins to ooze from the ligatured end: secondly the vessels, previously supported, relax: and thirdly the ligature which at first was sufficient to prevent, now permits the escape of blood, such hemorrhage if unchecked, may speedily prove fatal.

It is the thick form of funis which should always have two ligatures applied, one above the other, leaving space between them for the application of a third one if need arise.

The thin funis pulsates forcibly at birth, and can be easily and effectually ligatured.

The material for the ligature is important, ordinary stout white, or brown thread is best, three or four lengths being tied together by knotting the ends. A larger number of thread makes the ligature too thick and too broad to exert sufficient constriction; a less number would incise the funis if the ligature were tightened too forcibly and quickly.

The most effectual method of *application* is to tighten the ligature gradually, securing it by a double knot. The *time for applying the ligature* is also important. After pulsation has ceased is preferable, both as regards the life of the infant being established and maintained. It is well to note, however, that the first flaccidity of the cord, which is coincident with the cessation of pulsation, is dependant upon the establishment of respiration, and the alteration of circulation connected therewith. As soon, however, as the circulation and respiration forces balance each other, the funis becomes more or less tense again, and may exhibit a modified pulsation. This is noteworthy, for it indicates the necessity of seeing that the ligature which sufficed to prevent hemorrhage during the flaccid state of the funis, is equally effectual when circulation in the cord becomes temporarily re-established. By attention to this point life may be saved.

A carefully applied elastic ligature, employed after the plan advocated by Esmarch, would prove a valuable auxiliary, yet to insure safety an ordinary thread ligature should be applied as well. If severe vital depression ensue upon any considerable hemorrhage—to maintain the action of the heart, besides using stimulants by the mouth, and maintaining warmth by friction and external heat—the hypodermic injection of ether may help to save life, as it has already done in severe post-partum hemorrhage.—*Obstet. Journal of Great Brit. and Ireland*, Nov., 1876.

THE OVULATION THEORY OF MENSTRUATION.—Dr. A. Reeves Jackson, of the Woman's Hospital, of the state of Illinois, contributes to the American Journal of Obstetrics, an exhaustve article, of which the following summary concluding his article, expresses his views, previously elaborated and sustained by careful facts and argument.

"1. Ovulation and menstruation may each occur independently of the other.

"2. Ovulation is the irregular but constant function of the ovaries, while menstruation is the regular rhythmical function of the uterus (Kesteven).

"3. Ova are matured and discharged from the ovaries at all periods of female life, from early childhood to old age, both before puberty and after the menopause; hence, the one can not be the sign of the other.

"4. Menstruation is the consequence of conditions established by the structurally completed uterus, and depends upon ovulation only for its origination.

"5. The mucous membrane of the uterine body is the only organ essentially concerned in the menstrual act; the uterus proper, the ovaries, Fallopian tubes and vagina, have their functional activity increased, however, by receiving a share of the general pelvic congestion which accompanies the process.

"6. The menstrual congestion of the pelvic organs—of the ovaries in particular—is, of all causes, the one most likely to determine the ovipoint when a Graafian vesicle is sufficiently mature, and hence ovulation and menstruation are frequently concurrent.

"7. The theory that would make menstruation dependent upon ovulation fails to account for the possible occurrence of pregnancy at any and all times between the menstrual periods; for multiparous conceptions; for the frequent persistence of menstruation after the removal of both ovaries; for the non-interference with menstrual regularity by removal of one ovary, and for the menstrual derangements and the shifting of menstrual periodicity from mental emotion.

"8. All the known facts in regard to both ovulation and menstruation are consistent with the theory that, after the latter is once established, the two functions proceed side by side, but independently of each other, the former occurring at irregular and the latter at regular intervals; while, on the contrary, many of these facts are wholly inconsistent with the theory, that assumes a necessary ovular maturity and rupture at each menstrual period."—*American Journal of Obstetrics*, Oct., 1876.

CASE OF FIVE CHILDREN AT A BIRTH.—By James F. Pierce, M. D., of Mars Bluff, S. C. Scilla M., a negro woman, a multipara, gave birth on the 11th of September to five children. The labor was premature by one and a half months. The children were small but perfectly developed, ten and three-quarter inches long, and weighed (estimated, I had no opportunity of weighing) about two and a half pounds each.

One female was attached to a separate placenta. One female and three male children attached by separate cords to same placenta. I would have preserved the platentæ, but they were burned immediately on account of a superstition prevalent amongst southern negroes. The mother is doing well. Four of the children died immediately; one lived several hours.—*Med. News and Library*, Nov., 1876. And *Pacif. Med. and Surg. Journal*, Dec., 1876.

RUPTURE OF THE SYMPHYSIS PUBIS DURING LABOR.—Dr. Adams, of Framingham, U. S., relates a case in which this took place. The patient was a primipara, aged forty-two. A gush of liquor amnii occurred at the full term of pregnancy without pain or other warning, and without any dilatation of the os. Twenty hours after, pains began, and an examination showed a rigid os, admitting the end of the finger. Twelve hours later the os was dilated to a diameter of two inches, and remained rigid, notwithstanding the administration of antimony, when dilatation had proceeded somewhat further, Simpson's long forceps were applied, ether having been administered. During two hours, no progress was made. At the end of this time traction was being made during a very severe expulsive pain, when something gave way with a sharp crack, loud enough to be heard by all in the room. No collapse or faintness followed. The os then rapidly dilated and the head advanced. A drachm of wine of ergot, and a living child was born in about twenty minutes, with little help from the forceps. During the short time that the head was in the pelvis, there was some pain in the pubic region.

Next day she complained of soreness over the pubis, but no pain except on motion. She passed water eighteen hours after the accident, but incontinence of urine then began; there was thirst and rapid pulse, but no symptoms of metritis or peritonitis at any time. Four weeks after the accident an examination was made under ether. Complete separation of the symphysis was found; a space of two inches between the ragged edge of the bone, upon the right side, and the torn ligaments and fibro-cartilage of the left, with laceration of the anterior wall of the bladder and rent into the vestibule. The urethra entire, was very large, admitting one finger readily. This and the rent in the upper angle of the vestibule, made it easy to thoroughly examine all parts of the bladder and symphisis. The posterior wall, fundus and base of the bladder were uninjured. The vagina was everywhere whole, although its rectal surface showed irritation from dribbling urine. The author believes that the laceration of the bladder was caused by the ragged edge of the bony symphysis, perhaps during the passage of the head.—*Boston Med. and Surg. Journal*, July, 1876. *Obstet. Jr. Gr. Brit., and Ireland*, Nov., 1876.

TWO BIRTHS WITHIN TEN MONTHS.—Dr. C. H. Tidd, of Geneva, Iowa, reports from "cases in private practice," as follows: On Sunday, Dec. 5, 1875 Mrs. M. was delivered of a male child at full term. On Thursday, Sept. 14, 1876, she was again delivered of a large well developed male child, weighing seven and one-fourth pounds, which she claims, and which has every appearance of having gone to full term; and I may add that the child was born within three days of the time that she had claimed it ought to be, counting from the time and, as she claims the *only time*, she had sexual intercourse with her husband after the birth of her child until she was over two months advanced in her second pregnancy, she fixing the date from the fact that her husband left home for a two months absence the morning of the *tenth* day after her confinement, he soliciting and she consenting to a congress the evening before. Her first child never nursed at the breast, the extreme smallness of her nipples preventing; nor did she at any time seem to have much milk—indeed not enough to give her any trouble. This second child was born in just two-hundred and eighty-four days from the date of the birth of the first. In this case how are we to account for the absence of "degeneration" of the womb substance, as is described by Hamilton, Heschl, Retgius and others.—*Detroit Rev. of Med. and Phar.*, Dec. 1876.

ATMOSPHERIC DISTENTION OF THE VAGINA IN THE KNEE-CHEST POSTURE.—Dr. Wm. H. Doughty of Augusta, Georgia, calls attention to how far *air pressure* with the knee-chest posture is a factor in effecting retro-uterine displacements. He says: "we have so often reduced this class of displacements, with and without careful regard to the admission of air into the vagina, that we do not feel inclined to dignify it as the one essential, indispensable condition, or factor in the premises."

He concludes with a case and deductions: We were required to reduce a retroversion of several years standing, the patient being familiar with the knee-breast posture, and accustomed to the use of the self repositor. On raising the perineum, the uterus retreated, its fundus lodging against the promontory of the sacrum, the os looking rather forward, thus converting it into a retroversion of the first degree. It was then beyond the control of the fingers, requiring Sims' repositor to complete it. The patient avered that she always felt the entrance of air, and movement of the uterus, when in this position, but, as the examination showed was deceived as to the reduction, as we have before stated, other cases are not wanting to substantiate this as a common attendant upon self replacement. In the discussion of the subject before the New York Obstetrical Society, Dr. Peaslee anticipated this with the remark that "the power of air to replace a displaced uterus was liable to be overrated. The air will replace the uterus only as far as the vagina reaches, and a retroversion will then be found reduced from one of the third, to one of the second, perhaps from one of the second to one of the first degree; but the sound will still be felt to pass into the uterus, with its concavity turned slightly backward."

Amid the uncertainties that attend this and all other modes of displacement, when uniformly adopted, we venture to assert that the choice of positions and modes of redressing must be left to the good judgment of the operator. It is incumbent on him, however, to select that which confers the greatest control in any particular case, and becomes the least painful and repulsive to the patient, whether on the back, or in the semi prone or knee-chest (or elbow) posture, it may be left to him to determine: no absolute rule can be arbitrarily prescribed applicable to all cases of retro-flexions and retro-versions.

The following conclusions are drawn—namely:

1st. That pneumatic pressure, in the knee-chest posture is an auxiliary rather than a true factor, in the replacement of the retroverted uterus.

2nd. Gravity is the potent factor with or without the admission of air.

3rd. Combined posture, and pneumatic pressure are often partial only in the replacement of the uterus, and, as compared with other useful positions; deny useful knowledge of the condition of the organ when wholly or partially restored.

4th. The knee-chest posture, although available for the introduction of pessaries, is not without serious objections in *fitting* them, arising from the great distention of the vagina.

5th. Self-replacement involves a hazardous commitment of the treatment to the patient herself, delusive in character and results.—*American Journal of Obstetrics*, Oct., 1876.

A NEW METHOD OF TREATING UTERINE HEMORRHAGE.—Dr. H. Otis Hyatt, of Kinston, N. C., proposes the following ingenius procedure as "simple, safe, and effective, and up to now has never failed in a single instance in which I have used it." It consists in passing into the cavity of the uterus a rubber bag, which is afterwards distended by means of air or water, preferably water, until it fills the entire uterine cavity. The bag will press in the direction of the least resistance and adapt itself to all the little inequalities of the placental site. We thus without using any great amount of force, bring sufficient elastic pressure to bear upon the mouths of the bleeding vessels to effectually seal them, and render further hemorrhage an impossibility.

The hemorrhage being arrested, we can leisurely direct our attention to inducing uterine contractions, by kneading the uterus, and the administraton of ergot, either by the mouth, or hypodermically, when uterine action sets in (and it occasionally will immediately after the flow has ceased, especially if ice-water be used to distend the bag), we can allow the air or water to escape from the bag *pari-passu* with the contractions, or better allow it to remain. The bag being elastic, is easily moulded to the parts through which it has to pass, and will be expelled just as the bag of waters would, and at the same time continue to act as a valve to the bleeding vessels until the womb is so thoroughly contracted that further hemorrhage will cease.

These bags have a tube attachment similar to Barnes' dilators—and indeed he says that for cases that occur before the fifth month, a large Barnes' dilator can be so distended as to fill the entire uterine cavity.—*American Journal of obstetrics*, Oct. 1876.

ON THE HYPOTHESIS THAT THE HUMAN OVARIES CONTAIN MALE OR FEMALE OVA.—Prof. Mayrhofer, of Vienna, disproves as he thinks conclusively, the opinion advanced by Schultze in 1854, and recently supported by Ahlfeld that the sex of the child is determined by the presence of male and female ova in the human ovary, the order of maturation and impregnation of which is a matter of chance. Mayrhofer believes that the sex is determined during conception by a vital interchange of quality between the ovum and semen. A number of facts can be explained only by assuming that the human ovum during conception under all circumstances seeks to enforce the female sex, and the semen with equal persistance the male. Whether the product of conception becomes a boy or girl depends upon which of the two contestants, the semen or the ovum, gains the ascendancy. These facts are the following:

1. The influence of the relative ages of the parents, on the sex of the children is proved beyond doubt by statistical researches. Thus it was found that in those marriages in which the father was older than the mother, a considerably larger proportion of boys were born; but that when the parents were nearly of the same age, or the husband was younger than the wife, the number of girls largely predominated.

In proof of the definite decision of the sex *during* and not after conception, three observations taken from breeding animals are quoted:

2. The degree of nutrition (physical development) of the male and female mammæ appears to exert an influence on the sex of the fœtus.

3. Preservation of the semen by infrequent coition probably favors the formation of the male sex during cenception. Observa-

tions in sheep breeding appear to prove the truth of this proposition; the ram begetting male lambs in the beginning of the season—but females later.

4. It is also exceedingly probable that mammals, cows, for instance which have become impregnated during the early part œstruation, more frequently bear female, — others impregnated near the end of œstruation, male calves.

An interesting and important question for investigation bearing on this point would be to ascertain the proportion of male and female children in orthodox Jewish families. If the supposition be correct, that among the children of orthodox Jewish parents there are more boys than among the children of Christian parents, the reason would probably be found in the law, which declares the woman unclean during thirteen days from the beginning of menstruation.—*American Journal of Obstetrics*, Oct., 1876.

THE EXCESS OF MALE CHILDREN BORN OF OLD PRIMIPARÆ.—The same topic as the foregoing is discussed in a paper (in the same name of Arch. F. Gyn. IX. 3.) by Dr. Ahlfeld, of Liepzig.

In a paper written several years ago he had already pointed out the singular fact that a greater number of male children are born of primiparæ at an advanced age. In the present article he makes use of a dissertation of Dr. Schramm who collected the records of 16, 346 births as a basis of his investigations, 1,038 of which occurred in old primiparæ. Of the 1,055 children born of these latter, 584 were boys, 471 girls. A further table shows that the older the primiparæ are, the greater will be the excess of male children born to them, the proportion advancing at 35 years as high 265,4 boys to 100 girls.—*American Journal Obstetrics*, Oct. 1876.

VARIOUS METHODS OF TREATMENT IN PERTUSSIS.—Dr. P. B. Porter, of New York, gives the progress and results of an extended experience with whooping cough. His opportunities as attending physician to the New York Free Dispensary for sick children, and for diseases of children at the Demilt Dispensary—entitles his report to unusual respect, Dr. Porter published articles in 1872 and 1873 on the treatment of whooping cough with *chloral* in which his results had been very excellent.

Subsequently having his attention called to reports on the value of *castanea vesca*, by Dr. Davis, of Dayton, Ohio, and of *quinia*, by Dr. B. F. Dawson, of New York—he extended his experiments so that in a recent paper he supplements his previous observations with those made with the additional agents.

In the treatment of chloral, he had the good fortune to cut short the paroxysmal stage in some cases to one week—and in some even to a few days. The advantage gained will be realized when we reflect that "when left to itself, as is well known, whooping-cough, rarely runs its course in less than two months."

The *dose* of chloral given his patients, by Dr. Porter, was about *one grain* for each year of age, repeated every three hours.

In the treatment by quinine, the results were not very different, indeed remarkably satisfactory. Thus, a child—age four years—has had whooping cough one month, and now the paroxysms are violent and frequent. Ordered quinine every hour, in a solution, so that each dose was about *one grain. Almost entirely relieved* in seven days.

In the treatment with *castanea vesca*, (chestnut leaves) "Cooper's fluid extract" was used, and one drachm was given as a dose every three hours to children of five to eight years of age. The results were certainly very excellent, relief of the marked features of the cases being secured in two to three weeks, in many cases, still there were other cases in which the castanea appears to have been of but little service—indeed affording no appreciable relief.

Dr. Porter gives some results of minor importance with some other plans of treatment. (He does not seem to have given the Belladonna treatment any fair or extended trial. Our own experience has been, that the specific effect of belladonna almost uniformly arrests the paroxysmal stage E. B. S.) Dr. Porter concludes that: "With three such excellent agents as castanea, quinine, and choral, it seems to me that pertussis ought no longer to be such a formidable adversary as it has hitherto been generally considered; for if one fails, we have the others to fall back upon.—*New York Medical Journal*, Oct., 1876.

LISTER'S ANTISEPTIC METHOD IN OVARIOTOMY.—Dr. J. Marion Sims, of New York, reports an operation for ovarian tumor on the 23d of November ult., in which advantage was taken of Lister's antiseptic method, "the spray covered the seat of operation with a delicate carbolic mist. The hands, sponges, and instruments were all dipped in carbolic water. The operation and dressing lasted forty minutes, the spray being kept up all the time." The result was entirely successful; and Dr. Sims reported the case supposing it to be the first in which carbolic spray had been employed. In this claim for priority it seems he was mistaken, as he himself hastens to acknowledge. And now we find several additional claimants—thus in this country, a successful operation by Dr. W. T. Helmuth, of New York, in May, 1876—one by Dr. J. W. Richmond, of St. Joseph, Mo., Oct. 7, 1876—and now comes Dr. J. A. Milne, of Oswego, N. Y., who claims one operation by this plan one year ago (Dec., 1875) and one three years previous.—*New York Med. Record*, Dec. 9, 16, 23, 1876, and Jan. 6, 1877.

ANÆSTHESIA IN PUERPERAL CONVULSIONS.—Dr. John M. Julian, of Hoboken, N. J., thinks that too much reliance is placed upon anæsthesia in the general treatment of puerperal convulsions, although the method of unquestionable service in many cases, there is temptation to go to extremes which in his experience, is not warranted, he writes:

Whenever a two-thirds deposit of albumen is ascertained, scanty urine present, convulsions recurring either before or after delivery, and before a rapid pulse (the herald of danger) sets in, instead of placing our trust in the prolonged administration of anæsthetics—their benefit in such cases being limited to the alleviation of the eclamptic state—we should resort to the old, I feel sorry to say, rather neglected practice of venesection, assisted if need be, by the operation af transfusion. With the former we diminish, and with the latter, we dilute as much as possible the poison contained in in the blood. This is a ready method, and the only one in my opinion, calculated to permanently quiet the recurring spasm, and re-establish the functions of the kidneys. In conclusion I may be permitted to make the assertion, that in my own, as well as in the practice of others, I do not remember a single instance in which spontaneous diuresis became established that did not end in recovery.—*N. Y. Med. Record*, Dec. 16, 1876.

NERVOUS COUGH DUE TO ANTEVERSION OF THE UTERUS.—Malachia de Christiforis, reports in *The Lyon Medical*, Nov., 1876, the case of a woman, aged twenty-three years, who had been treated for a nervous cough for a long time with antispasmodics, but without success, and was finally sent to him for a laryngoscopic examination. The patient had been pregnant once, two years before but she aborted at the third month. Since then she has had a slight leucorrhœa, and lumbar pains, which are augmented by walking or standing. The examination of the thorax, abdomen, and larynx, gave negative results. There were no painful points on the vertebral column. The cough occurred only during the day, and consisted of frequent, short paroxysms, with intervals of repose varying from half an hour to two hours. No expectoration. The cough ceased immediately when the patient lays down. For over a year she had often suffered from dysuria.

A vaginal examination revealed marked anteversion, and considerable enlargement of the uterus. In the dorsal decubitis the organ resumed very nearly its normal position. The uterus was replaced, and kept in position by Hodge's pessary, and the cough stopped at once. A few days later the pessary was withdrawn, but the anteversion was then reproduced, and the paroxysms of coughing returned and continued, until the pessary was reapplied. At the end of a year, the uterus was very much diminished in size, and the anteversion so much modified that the patient did not cough even when the pessary was removed.—*N. Y. Medical Record*, Dec. 23, 1876.

A NEW REMEDY, CALLED DIGESTINE.—By A. F. Shelby, M. D., of Philadelphia. This is obtained from the gizzard of the domestic fowl (chicken) and is a specific for vomiting in pregnancy. I have used this remedy for twenty-five years, and it has never failed. It is also the most powerful and reliable remedy for the cure of indigestion (dyspepsia), and sick stomach caused from debility of that organ. It is useful in all cases where the pepsines and pancreatines are used, but with much more certainty of its good results, for it puts all those preparations, in my experience, in the background.

In complicated affections of the stomach, such as inflammation, gastralgia, pyrosis, etc., it may be combined with subnitrate of bismuth and opiates; and in diarrhœa and cholera infantum, with astringents, both vegetable and mineral. I have given the article to several prominent physicians, who have used it with the happiest results, among whom I may mention Professor E. Wallace, of the Jefferson Medical College; he gives me the result of seventeen cases as follows:

In vomiting of pregnancy, out of nine cases he cured six, and palliated two, and in one case the remedy was not taken according to direction, and therefore had no effect.

He used it in seven cases of sick stomach caused by chronic inflammation of the uterus; cured five, and two remained doubtful. He also used it in a case of very obstinate sick stomach, caused by an irreducible hernia, and says this was the only remedy that gave any relief.

We, who have some experience, all know that vomiting of pregnancy is a sore affliction, and in some cases almost unendurable, nay, indeed, putting life in jeopardy; but in digestine we have a remedy which will prove to be a great blessing to mothers, who, as yet, think vomiting must be endured as a natural consequence.

If I am able, by this publication, to induce the medical fraternity to make use of the remedy, I am positive that a great boon will be conferred upon a class of sufferers who claim our sympathy.

The dose is from five to ten grains, hardly ever more than five, except in obstinate cases. For children, from one to five grains. My mode of administering it is in a spoonful of water or tea, or it may be strewn on a piece of bread and covered over with a little butter; It is however, nearly tasteless. In dyspepsia and in vomiting of pregnancy, I direct it to be taken half an hour or so before each meal. In other affections of the stomach and bowels, every two to four hours. I give it uncombined, except in complicated cases, as heretofore mentioned. The methods by which this principle can be obtained from the viscus are various. When I commenced to employ it, I used it in rather a crude state, by pulverizing the lining membrane of the gizzard; but it it requires too much care and precision in the drying and cleansing operation, in order not to destroy its virtues. There is also great inconvenience in obtaining the viscus during the heat of summer and extreme cold of winter, as temperature is one of the main things to be observed, in order to preserve its efficacy, purity and sweetness. Later, finding this mode of preparation unsatisfactory, and inconvenient for the above reasons, I consulted with Wm. R. Warner & Co., 1228 Market street, Philadelphia, who have prepared a form, designated digestine; its purity, and also its good effects, I can vouch for.

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Editorial.

The annual Commencement exercises in the different Medical Colleges of this city, held during the last week of February, excited if possible, more than the usual interest of such occasions.

The first to take place was the Cincinnati College of Medicine and Surgery, which was held on the evening of February 27th at Pike's Opera House. The large room was filled with as fine an audience, as any class of young men could desire to see. The exercises were of the usual character.

Prof. D. D. Bramble, Dean of the faculty in making his report of the condition and prospects of the College, took occasion to state that "the college had more than preserved its existence, and that it continued to prosper. * * * * * * This land contains already too many physicians. There are hundreds of men sent forth every year from Medical Colleges to scourge the land with their ignorance. The remedy lies in one direction only—make the requirements for graduation so difficult that incompetent men shall be discouraged at the very thresh-hold of the profession."

We are glad to know of the material prosperity, of any and all of our Cincinnati Colleges, but the above remarks by the Dean should receive the cordial endorsement, of every honorable man in the medical profession. It would give us sincere pleasure to be called upon to announce that the Cincinnati College of Medicine and Surgery had adopted a regular graded course of study, with which all her students would be obliged to comply, and that even on the thresh-hold of their course of study, satisfactory evidence of a good preliminary education would be required. The College that makes that announcement, will command the support of the best part of not only the medical profession, but of educated men in other professions and pursuits. Undoubtedly "this land contains already too many physicians;" and the best plan in the world to thin the ranks, is to elevate the standard of preparatory education and then of every subsequent examination. All honor and praise to the college that institutes the advanced system of medical education.

On the 27th of February there was a large meeting of the alumni of Miami Medical College held at the college edifice, on Twelfth street. About two hundred members of the association were present, many being from distant States, who had not forgotten their alma mater, and showed their love for her by their presence. It was the annual meeting for the election of officers, payment of dues and transaction of business of interest and profit to the profession. The newly elected officers are:

President—Dr. J. L. Cilley, of Ohio.

Vice Presidents—First: Dr. P. M. Williams, of Ohio, class of '56; Second: Dr. J. C. Ross, of Illinois, class of '57; Third: Dr. S. D. Meserve, of Illinois, class of '57; Fourth: Dr. D. P. Jackson, of Pennsylvania, class of '74; Fifth: Dr. J. L. Firebaugh, of Illinois, class of '75; Sixth: Dr. Allison Maxwell, of Indiana, class of '76.

Secretary—Dr. Wm. Judkins.

Treasurer—Dr. A. D. Bender.

Executive Committee—Drs. Wm. B. Davis, W. H. Falls and W. H. Wenning.

A resolution was introduced, and warmly supported by Drs. W. B. Davis, Cilley and others, the provisions of which were that the alumni pledged themselves to receive no student of medicine into their offices who was not possessed of a thorough English education. This resolution was unanimously adopted by a rising vote.

This really sounded like business. And our eyes involuntarily blinked and winked in anticipation of the millennial dawn they were about to behold in medical education. The fact is there is a general clamoring on the part of the profession all over the land, for the adoption by the colleges of preliminary examinations, and thereafter a graded course of instruction. The alumni associations are the great feeders of the various schools, and they are making their influence felt and we are glad to see their efforts turned in proper channels. We believe there is no college in the West, that is at this time better prepared in all respects to successfully inaugurate not only preliminary examinations, but a graded course of instruction to which every student that hankers after a Miami Medical College Diploma will be obliged to conform.

In the evening the association, the graduating class, professors, and a few friends met at the annual banquet at the Gibson House. The spread convinced us that the proprietors of the aforesaid hotel were inflationists of the rankest sort, in fact inflation was the first order of the evening, and although ample opportunity was afforded, the melancholy voice of the dyspeptic was silent.

Dr. B. Stanton, President of the association, having expressed his satisfaction that so many were present to testify their respect for their alma mater, congratulated the recent graduates upon successfully completing the prescribed course. The response on behalf of the class was made by Dr. J. O. McDowell, in which he paid a graceful tribute to the profession, and expressed a hope for the success of the various members of the class.

Judge M. F. Force, responded in a most eloquent manner to the toast, 'The Legal Profession.' He said he was not present to apologize for the law. He claimed to be one of its liegemen, and paid a willing homage to its sovereignty, Laws were a natural outgrowth of the community; they might be colored by the progressive changes among the people; they may be imperfectly formulated by legislatures, imperfectly announced by the courts; nevertheless they are the voice of the people, and this fact lends dignity to the act of the weakest official whose business it is to interpret or to enforce the requirements of law. Law is everywhere. It partakes in every transaction of life. It is a conservator of the piece, not only by settling but by preventing disputes. Where law does not exist there anarchy prevails. With law humanity has peace, order, the social system, the beautiful arts, and all the attainments of civilization.

Dr. Z. M. Humphrey of Lane Seminary responded to the toast 'The Ministry.' He discussed in a very *pungent* vein the distinction between a doctor of medicine and a doctor of divinity.

'The Press,' responded to by Richard Smith of the Gazette: "It was customary," he said, "for an editor to be called upon to answer to the sentiment that had been just announced. Possibly there was a mistake in this uniform custom. An editor was expected to know everything, but the antagonism between the professions of the physician and the editor might lead to complications. The editor might, perhaps, take upon himself to criticise too closely some points in medical ethics. For example, he might take up the subject of advertising and animadvert upon the rules of the medical profession in this particular. He would say: "It is all very well for us, as editors or reporters, to say that Dr. John Brown has shown great skill in his practice and will undoubtedly rise in his profession, but you as medical men will not allow us to go further and mention your business in the ordinary manner for a consideration." The editor might criticise this proceeding of the physicians as an interference with newspaper business, and he might, also, object to it as not affording the young medical man a chance to rise as rapidly as he could rise in another profession. Again, the editor might criticise the doctors on the point that the latter are acrimonious to a degree in their newspaper controversies. Newspaper men had been remarked on account of the savage personal disputes in which they were sometimes engaged, but for artistic and remorseless dissections of the reputations of each other, physicians could not be surpassed. Last of all, the editor might say to the doctors, with proper emphasis, "Gentlemen, please make your medicines palatable. You will make more money and we shall take more medicine." But when this is all said there remains much which even the editor, critical as he is, must praise in the medical profession. The faithful physician goes hand in hand with the clergymen. Often the physician has the greater task of the two. His labors are too frequently unattended with a reward more tangible than thanks. He responds to every call by day or night, and dies at last in comparative poverty. His relations with his clients are of the most delicate description. His care and anxiety are unceasing, and his struggles and disappointments before he attains a competence might fairly discourage one of another profession. The speaker then alluded to the progress of newspaper work as compared with that of other professions, and suggested that perhaps the time would come when a school of journalism, not to turn out editors as doctors were turned out of a medical school, but to give those who were to manage newspapers more correct notions of the responsibility of their position and of their relation to others, would be established.

Prof. Wm. Clendenin responded gracefully and briefly to the toast, "The Miami Medical College," and concluded by saying that the institution had never been in a more flourishing condition.

At the conclusion of the toasts and responses an oration upon the subject of "Vitalism and Vital Medication" was delivered by Dr. R. C. Bond, of Aurora, Ind.

The annual Commencement exercises of the Miami Medical College were held in Pike's Opera House, February 28th. The room was filled to its utmost capacity by the friends of the college and of medical education.

The following address by the Dean Prof. J. A. Murphy is a brief statement of the condition and future prospects of the college. It is certainly a very satisfactory exhibit.

DR. MURPHY'S ADDRESS.

LADIES AND GENTLEMEN: The exercises of this evening will close the seventeenth session of the Miami Medical College. One hundred and forty-three students have been in attendance on the lectures of the school; of this number thirty-five have been carefully examined by the faculty, and will receive the degree of Doctor of Medicine at the hands of the President of the Board of Trustees.

The prospects of the school are all that its friends can desire. Its steady growth in the estimation and confidence of the profession is marked by the improved qualifications of the students. This city affords unusual clinical advantages. I think I am safe in saying that it surpasses any Western city in the amount of clinical material. The large City Hospital, with four thousand patients yearly, and an average of three hundred and fifty daily in its wards, gives unusual opportunity to the staff to teach medicine as it should be taught, at the bedside. In addition to these advantages, the faculty examine and treat before the class daily a large number of sick. The young gentlemen who go forth to-night are not without experience in the observation and treatment of disease. The class has embraced the excellent opportunities offered. As some evidence of the qualifications of those we deem worthy of the honors of the school I may state that six of our class succeeding in winning places as resident physicians in the City Hospital at the late competive examination, while the seventh was won by a student of a rival school.

The faculty labors with an honest purpose to educate and qualify its students for the responsible duties of their calling. Medical teaching in this city is all that the honest and diligent student can

Bi-Monthly Abstract.

An Abstract of Current Contributions to Obstetrics, Gynecology and Diseases of Children.

Condensed by EDWARD B. STEVENS, M. D.,

Prof. of Materia Medica in the Syracuse University, New York.

HEMORRHAGE FROM THE FUNIS.—H. Cripps Lawrence, F. R. C. P., London, makes some practical and sensible suggestions: The expressions umbilical hemorrhage, and hemorrhage from the funis, though often employed synonymously, differ manifestly in signification.

Hemorrhage from the funis is essentially a primary form of hemorrhage, while umbilical hemorrhage is virtually a secondary form.

The distinction is an important one for several reasons, not the least being this practical one, that whereas the umbilical form of hemorrhage is frequently a serious and sometimes a fatal malady, hemorrhage from the funis is if properly dealt with, an easily controlled affection.

The differential diagnosis between the two is also important, to avoid the error of overlooking the existence of an umbilical hemorrhage on the one hand, and on the other of attributing a hemorrhage, which has proved or may prove fatal, to an umbilical source, when in reality the hemorrhage has occurred owing to an insufficient treatment of the recently divided funis.

As regards the *causation* of hemorrhage from the recently divided funis, it may be noted first that a rare variety, described by Dr. Dewees, sometimes arises from rupture or ulceration of one of the varicose dilatations of the umbilical vein; and of this it may now be stated that the hemorrhage occurs at the side of the funis, and for its arrest a ligature should be applied below the site of hemorrhage.

With this exception, the causes of hemorrhage from the funis may be said to include imperfect application of the ligature; improper handling of the ligature or end of the funis by unskilled hands; imperfect and hence improper material employed as a ligature. Next to these, oozing of the whartonian jelly from the ligatured end of the funis; laceration of the funis during sudden labor, or by force applied to it after delivery; inefficient mechanical laceration.

The above include avoidable difficulties, if the unusual laceration which has attended sudden labor in the upright position be excepted. A special line of demarcation should be drawn between such cases and those more serious forms of hemorrhage which are in reality connected with some affection of the umbilicus. For practical purposes the funis may be said to present two typical forms. One variety is the broad, thick funis, distended with Whartonian jelly, twisted and feebly pulsating. The second form of funis is thin, flaccid, less tortuous, and somewhat feebly pulsates, being but little distended with the Whartonian fluid.

In the thick form of funis the whartonian jelly, in surrounding and protecting, also supports and exerts some pressure upon the umbilical vessels passing through the funis.

When a thick funis has been ligatured the vessels appear, after division of the cord, fully secured; for they are comparatively small owing to the support and pressure exercised by the whartonian jelly; hence they do not at once attempt to bleed, but it is after a few minutes that hemorrhage may and often does occur.

Hemorrhage from the end of such a funis, recently ligatured and divided, arises from three causes; first the Whartonian jelly begins to ooze from the ligatured end: secondly the vessels, previously supported, relax: and thirdly the ligature which at first was sufficient to prevent, now permits the escape of blood, such hemorrhage if unchecked, may speedily prove fatal.

It is the thick form of funis which should always have two ligatures applied, one above the other, leaving space between them for the application of a third one if need arise.

The thin funis pulsates forcibly at birth, and can be easily and effectually ligatured.

The material for the ligature is important, ordinary stout white, or brown thread is best, three or four lengths being tied together by knotting the ends. A larger number of thread makes the ligature too thick and too broad to exert sufficient constriction; a less number would incise the funis if the ligature were tightened too forcibly and quickly.

The most effectual method of *application* is to tighten the ligature gradually, securing it by a double knot. The *time for applying the ligature* is also important. After pulsation has ceased is preferable, both as regards the life of the infant being established and maintained. It is well to note, however, that the first flaccidity of the cord, which is coincident with the cessation of pulsation, is dependant upon the establishment of respiration, and the alteration of circulation connected therewith. As soon, however, as the circulation and respiration forces balance each other, the funis becomes more or less tense again, and may exhibit a modified pulsation. This is noteworthy, for it indicates the necessity of seeing that the ligature which sufficed to prevent hemorrhage during the flaccid state of the funis, is equally effectual when circulation in the cord becomes temporarily re-established. By attention to this point life may be saved.

A carefully applied elastic ligature, employed after the plan advocated by Esmarch, would prove a valuable auxiliary, yet to insure safety an ordinary thread ligature should be applied as well.

If severe vital depression ensue upon any considerable hemorrhage—to maintain the action of the heart, besides using stimulants by the mouth, and maintaining warmth by friction and external heat—the hypodermic injection of ether may help to save life, as it has already done in severe post-partum hemorrhage.—*Obstet. Journal of Great Brit. and Ireland*, Nov., 1876.

THE OVULATION THEORY OF MENSTRUATION.—Dr. A. Reeves Jackson, of the Woman's Hospital, of the state of Illinois, contributes to the American Journal of Obstetrics, an exhaustve article, of which the following summary concluding his article, expresses his views, previously elaborated and sustained by careful facts and argument.

"1. Ovulation and menstruation may each occur independently of the other.

"2. Ovulation is the irregular but constant function of the ovaries, while menstruation is the regular rhythmical function of the uterus (Kesteven).

"3. Ova are matured and discharged from the ovaries at all periods of female life, from early childhood to old age, both before puberty and after the menopause; hence, the one can not be the sign of the other.

"4. Menstruation is the consequence of conditions established by the structurally completed uterus, and depends upon ovulation only for its origination.

"5. The mucous membrane of the uterine body is the only organ essentially concerned in the menstrual act; the uterus proper, the ovaries, Fallopian tubes and vagina, have their functional activity increased, however, by receiving a share of the general pelvic congestion which accompanies the process.

"6. The menstrual congestion of the pelvic organs– of the ovaries in particular—is, of all causes, the one most likely to determine the ovipoint when a Graafian vesicle is sufficiently mature, and hence ovulation and menstruation are frequently concurrent.

"7. The theory that would make menstruation dependent upon ovulation fails to account for the possible occurrence of pregnancy at any and all times between the menstrual periods; for multiparous conceptions; for the frequent persistence of menstruation after the removal of both ovaries; for the non-interference with menstrual regularity by removal of one ovary, and for the menstrual derangements and the shifting of menstrual periodicity from mental emotion.

"8. All the known facts in regard to both ovulation and menstruation are consistent with the theory that, after the latter is once established, the two functions proceed side by side, but independently of each other, the former occurring at irregular and the latter at regular intervals; while, on the contrary, many of these facts are wholly inconsistent with the theory, that assumes a necessary ovular maturity and rupture at each menstrual period."—*American Journal of Obstetrics*, Oct., 1876.

CASE OF FIVE CHILDREN AT A BIRTH.—By James F. Pierce, M. D., of Mars Bluff, S. C. Scilla M., a negro woman, a multipara, gave birth on the 11th of September to five children. The labor was premature by one and a half months. The children were small but perfectly developed, ten and three-quarter inches long, and weighed (estimated, I had no opportunity of weighing) about two and a half pounds each.

One female was attached to a separate placenta. One female and three male children attached by separate cords to same placenta. I would have preserved the platentæ, but they were burned immediately on account of a superstition prevalent amongst southern negroes. The mother is doing well. Four of the children died immediately; one lived several hours.—*Med. News and Library*, Nov., 1876. And *Pacif. Med. and Surg. Journal*, Dec., 1876.

RUPTURE OF THE SYMPHYSIS PUBIS DURING LABOR. — Dr. Adams, of Framingham, U. S., relates a case in which this took place. The patient was a primipara, aged forty-two. A gush of liquor amnii occurred at the full term of pregnancy without pain or other warning, and without any dilatation of the os. Twenty hours after, pains began, and an examination showed a rigid os, admitting the end of the finger. Twelve hours later the os was dilated to a diameter of two inches, and remained rigid, notwithstanding the administration of antimony, when dilatation had proceeded somewhat further, Simpson's long forceps were applied, ether having been administered. During two hours, no progress was made. At the end of this time traction was being made during a very severe expulsive pain, when something gave way with a sharp crack, loud enough to be heard by all in the room. No collapse or faintness followed. The os then rapidly dilated and the head advanced. A drachm of wine of ergot, and a living child was born in about twenty minutes, with little help from the forceps. During the short time that the head was in the pelvis, there was some pain in the pubic region.

Next day she complained of soreness over the pubis, but no pain except on motion. She passed water eighteen hours after the accident, but incontinence of urine then began; there was thirst and rapid pulse, but no symptoms of metritis or peritonitis at any time. Four weeks after the accident an examination was made under ether. Complete separation of the symphysis was found; a space of two inches between the ragged edge of the bone, upon the right side, and the torn ligaments and fibro-cartilage of the left, with laceration of the anterior wall of the bladder and rent into the vestibule. The urethra entire, was very large, admitting one finger readily. This and the rent in the upper angle of the vestibule, made it easy to thoroughly examine all parts of the bladder and symphisis. The posterior wall, fundus and base of the bladder were uninjured. The vagina was everywhere whole, although its rectal surface showed irritation from dribbling urine. The author believes that the laceration of the bladder was caused by the ragged edge of the bony symphysis, perhaps during the passage of the head.—*Boston Med. and Surg. Journal*, July, 1876. *Obstet. Jr. Gr. Brit., and Ireland*, Nov., 1876.

TWO BIRTHS WITHIN TEN MONTHS.—Dr. C. H. Tidd, of Geneva, Iowa, reports from "cases in private practice," as follows: On Sunday, Dec. 5, 1875 Mrs. M. was delivered of a male child at full term. On Thursday, Sept. 14, 1876, she was again delivered of a large well developed male child, weighing seven and one-fourth pounds, which she claims, and which has every appearance of having gone to full term; and I may add that the child was born within three days of the time that she had claimed it ought to be, counting from the time and, as she claims the *only time*, she had sexual intercourse with her husband after the birth of her child until she was over two months advanced in her second pregnancy, she fixing the date from the fact that her husband left home for a two months absence the morning of the *tenth* day after her confinement, he soliciting and she consenting to a congress the evening before. Her first child never nursed at the breast, the extreme smallness of her nipples preventing; nor did she at any time seem to have much milk—indeed not enough to give her any trouble. This second child was born in just two-hundred and eighty-four days from the date of the birth of the first. In this case how are we to account for the absence of "degeneration" of the womb substance, as is described by Hamilton, Heschl, Retgius and others.—*Detroit Rev. of Med. and Phar.*, Dec. 1876.

ATMOSPHERIC DISTENTION OF THE VAGINA IN THE KNEE-CHEST POSTURE.—Dr. Wm. H. Doughty of Augusta, Georgia, calls attention to how far *air pressure* with the knee-chest posture is a factor in effecting retro-uterine displacements. He says: "we have so often reduced this class of displacements, with and without careful regard to the admission of air into the vagina, that we do not feel inclined to dignify it as the one essential, indispensable condition, or factor in the premises."

He concludes with a case and deductions: We were required to reduce a retroversion of several years standing, the patient being familiar with the knee-breast posture, and accustomed to the use of the self repositor. On raising the perineum, the uterus retreated, its fundus lodging against the promontory of the sacrum, the os looking rather forward, thus converting it into a retroversion of the first degree. It was then beyond the control of the fingers, requiring Sims' repositor to complete it. The patient avered that she always felt the entrance of air, and movement of the uterus, when in this position, but, as the examination showed was deceived as to the reduction, as we have before stated, other cases are not wanting to substantiate this as a common attendant upon self replacement. In the discussion of the subject before the New York Obstetrical Society, Dr. Peaslee anticipated this with the remark that "the power of air to replace a displaced uterus was liable to be overrated. The air will replace the uterus only as far as the vagina reaches, and a retroversion will then be found reduced from one of the third, to one of the second, perhaps from one of the second to one of the first degree; but the sound will still be felt to pass into the uterus, with its concavity turned slightly backward."

Amid the uncertainties that attend this and all other modes of displacement, when uniformly adopted, we venture to assert that the choice of positions and modes of redressing must be left to the good judgment of the operator. It is incumbent on him, however, to select that which confers the greatest control in any particular case, and becomes the least painful and repulsive to the patient, whether on the back, or in the semi prone or knee-chest (or elbow) posture, it may be left to him to determine: no absolute rule can be arbitrarily prescribed applicable to all cases of retro-flexions and retro-versions.

The following conclusions are drawn—namely:

1st. That pneumatic pressure, in the knee-chest posture is an auxiliary rather than a true factor, in the replacement of the retroverted uterus.

2nd. Gravity is the potent factor with or without the admission of air.

3rd. Combined posture, and pneumatic pressure are often partial only in the replacement of the uterus, and, as compared with other useful positions; deny useful knowledge of the condition of the organ when wholly or partially restored.

4th. The knee-chest posture, although available for the introduction of pessaries, is not without serious objections in *fitting* them, arising from the great distention of the vagina.

5th. Self-replacement involves a hazardous commitment of the treatment to the patient herself, delusive in character and results.—*American Journal of Obstetrics*, Oct., 1876.

A NEW METHOD OF TREATING UTERINE HEMORRHAGE.—Dr. H. Otis Hyatt, of Kinston, N. C., proposes the following ingenius procedure as "simple, safe, and effective, and up to now has never failed in a single instance in which I have used it." It consists in passing into the cavity of the uterus a rubber bag, which is afterwards distended by means of air or water, preferably water, until it fills the entire uterine cavity. The bag will press in the direction of the least resistance and adapt itself to all the little inequalities of the placental site. We thus without using any great amount of force, bring sufficient elastic pressure to bear upon the mouths of the bleeding vessels to effectually seal them, and render further hemorrhage an impossibility.

The hemorrhage being arrested, we can leisurely direct our attention to inducing uterine contractions, by kneading the uterus, and the administraton of ergot, either by the month, or hypodermically, when uterine action sets in (and it occasionally will immediately after the flow has ceased, especially if ice-water be used to distend the bag), we can allow the air or water to escape from the bag *pari-passu* with the contractions, or better allow it to remain. The bag being elastic, is easily moulded to the parts through which it has to pass, and will be expelled just as the bag of waters would, and at the same time continue to act as a valve to the bleeding vessels until the womb is so thoroughly contracted that further hemorrhage will cease.

These bags have a tube attachment similar to Barnes' dilators—and indeed he says that for cases that occur before the fifth month, a large Barnes' dilator can be so distended as to fill the entire uterine cavity.—*American Journal of obstetrics*, Oct. 1876.

ON THE HYPOTHESIS THAT THE HUMAN OVARIES CONTAIN MALE OR FEMALE OVA.—Prof. Mayrhofer, of Vienna, disproves as he thinks conclusively, the opinion advanced by Schultze in 1854, and recently supported by Ahlfeld that the sex of the child is determined by the presence of male and female ova in the human ovary, the order of maturation and impregnation of which is a matter of chance. Mayrhofer believes that the sex is determined during conception by a vital interchange of quality between the ovum and semen. A number of facts can be explained only by assuming that the human ovum during conception under all circumstances seeks to enforce the female sex, and the semen with equal persistance the male. Whether the product of conception becomes a boy or girl depends upon which of the two contestants, the semen or the ovum, gains the ascendancy. These facts are the following:

1. The influence of the relative ages of the parents, on the sex of the children is proved beyond doubt by statistical researches. Thus it was found that in those marriages in which the father was older than the mother, a considerably larger proportion of boys were born; but that when the parents were nearly of the same age, or the husband was younger than the wife, the number of girls largely predominated.

In proof of the definite decision of the sex *during* and not after conception, three observations taken from breeding animals are quoted:

2. The degree of nutrition (physical development) of the male and female mammæ appears to exert an influence on the sex of the fœtus.

3. Preservation of the semen by infrequent coition probably favors the formation of the male sex during conception. Observa-

tions in sheep breeding appear to prove the truth of this proposition; the ram begetting male lambs in the beginning of the season—but females later.

4. It is also exceedingly probable that mammals, cows for instance which have become impregnated during the early part œstruation, more frequently bear female, — others impregnated near the end of œstruation, male calves.

An interesting and important question for investigation bearing on this point would be to ascertain the proportion of male and female children in orthodox Jewish families. If the supposition be correct, that among the children of orthodox Jewish parents there are more boys than among the children of Christian parents, the reason would probably be found in the law, which declares the woman unclean during thirteen days from the beginning of menstruation.—*American Journal of Obstetrics*, Oct., 1876.

THE EXCESS OF MALE CHILDREN BORN OF OLD PRIMIPARÆ.—The same topic as the foregoing is discussed in a paper (in the same name of Arch. F. Gyn. IX. 3.) by Dr. Ahlfeld, of Liepzig.

In a paper written several years ago he had already pointed out the singular fact that a greater number of male children are born of primiparæ at an advanced age. In the present article he makes use of a dissertation of Dr. Schramm who collected the records of 16, 346 births as a basis of his investigations, 1,038 of which occurred in old primiparæ. Of the 1,055 children born of these latter, 584 were boys, 471 girls. A further table shows that the older the primiparæ are, the greater will be the excess of male children born to them, the proportion advancing at 35 years as high 265,4 boys to 100 girls.—*American Journal Obstetrics*, Oct. 1876.

VARIOUS METHODS OF TREATMENT IN PERTUSSIS.—Dr. P. B. Porter, of New York, gives the progress and results of an extended experience with whooping cough. His opportunities as attending physician to the New York Free Dispensary for sick children, and for diseases of children at the Demilt Dispensary—entitles his report to unusual respect, Dr. Porter published articles in 1872 and 1873 on the treatment of whooping cough with *chloral* in which his results had been very excellent.

Subsequently having his attention called to reports on the value of *castanea vesca*, by Dr. Davis, of Dayton, Ohio, and of *quinia*, by Dr. B. F. Dawson, of New York—he extended his experiments so that in a recent paper he supplements his previous observations with those made with the additional agents.

In the treatment of chloral, he had the good fortune to cut short the paroxysmal stage in some cases to one week—and in some even to a few days. The advantage gained will be realized when we reflect that "when left to itself, as is well known, whooping-cough, rarely runs its course in less than two months."

The *dose* of chloral given his patients, by Dr. Porter, was about *one grain* for each year of age, repeated every three hours.

In the treatment by quinine, the results were not very different, indeed remarkably satisfactory. Thus, a child—age four years—has had whooping cough one month, and now the paroxysms are violent and frequent. Ordered quinine every hour, in a solution, so that each dose was about *one grain*. *Almost entirely relieved* in seven days.

In the treatment with *castanea vesca*, (chestnut leaves) "Cooper's fluid extract" was used, and one drachm was given as a dose every three hours to children of five to eight years of age. The results were certainly very excellent, relief of the marked features of the cases being secured in two to three weeks, in many cases, still there were other cases in which the castanea appears to have been of but little service—indeed affording no appreciable relief.

Dr. Porter gives some results of minor importance with some other plans of treatment. (He does not seem to have given the Belladonna treatment any fair or extended trial. Our own experience has been, that the specific effect of belladonna almost uniformly arrests the paroxysmal stage E. B. S.) Dr. Porter concludes that: "With three such excellent agents as castanea, quinine, and choral, it seems to me that pertussis ought no longer to be such a formidable adversary as it has hitherto been generally considered; for if one fails, we have the others to fall back upon.—*New York Medical Journal*, Oct., 1876.

LISTER'S ANTISEPTIC METHOD IN OVARIOTOMY.—Dr. J. Marion Sims, of New York, reports an operation for ovarian tumor on the 23d of November ult., in which advantage was taken of Lister's antiseptic method, "the spray covered the seat of operation with a delicate carbolic mist. The hands, sponges, and instruments were all dipped in carbolic water. The operation and dressing lasted forty minutes, the spray being kept up all the time." The result was entirely successful; and Dr. Sims reported the case supposing it to be the first in which carbolic spray had been employed. In this claim for priority it seems he was mistaken, as he himself hastens to acknowledge. And now we find several additional claimants—thus in this country, a successful operation by Dr. W. T. Helmuth, of New York, in May, 1876—one by Dr. J. W. Richmond, of St. Joseph, Mo., Oct. 7, 1876—and now comes Dr. J. A. Milne, of Oswego, N. Y., who claims one operation by this plan one year ago (Dec., 1875) and one three years previous.—*New York Med. Record*, Dec. 9, 16, 23, 1876, and Jan. 6, 1877.

ANÆSTHESIA IN PUERPERAL CONVULSIONS.—Dr. John M. Julian, of Hoboken, N. J., thinks that too much reliance is placed upon anæsthesia in the general treatment of puerperal convulsions, although the method of unquestionable service in many cases, there is temptation to go to extremes which in his experience, is not warranted, he writes:

Whenever a two-thirds deposit of albumen is ascertained, scanty urine present, convulsions recurring either before or after delivery, and before a rapid pulse (the herald of danger) sets in, instead of placing our trust in the prolonged administration of anæsthetics—their benefit in such cases being limited to the alleviation of the eclamptic state—we should resort to the old, I feel sorry to say, rather neglected practice of venesection, assisted if need be, by the operation af transfusion. With the former we diminish, and with the latter, we dilute as much as possible the poison contained in in the blood. This is a ready method, and the only one in my opinion, calculated to permanently quiet the recurring spasm, and re-establish the functions of the kidneys. In conclusion I may be permitted to make the assertion, that in my own, as well as in the practice of others, I do not remember a single instance in which spontaneous diuresis became established that did not end in recovery.—*N. Y. Med. Record*, Dec. 16, 1876.

NERVOUS COUGH DUE TO ANTEVERSION OF THE UTERUS.—Malachia de Christiforis, reports in *The Lyon Medical*, Nov., 1876, the case of a woman, aged twenty-three years, who had been treated for a nervous cough for a long time with antispasmodics, but without success, and was finally sent to him for a laryngoscopic examination. The patient had been pregnant once, two years before but she aborted at the third month. Since then she has had a slight leucorrhœa, and lumbar pains, which are augmented by walking or standing. The examination of the thorax, abdomen, and larynx, gave negative results. There were no painful points on the vertebral column. The cough occurred only during the day, and consisted of frequent, short paroxysms, with intervals of repose varying from half an hour to two hours. No expectoration. The cough ceased immediately when the patient lays down. For over a year she had often suffered from dysuria.

A vaginal examination revealed marked anteversion, and considerable enlargement of the uterus. In the dorsal decubitis the organ resumed very nearly its normal position. The uterus was replaced, and kept in position by Hodge's pessary, and the cough stopped at once. A few days later the pessary was withdrawn, but the anteversion was then reproduced, and the paroxysms of coughing returned and continued, until the pessary was reapplied. At the end of a year, the uterus was very much diminished in size, and the anteversion so much modified that the patient did not cough even when the pessary was removed.—*N. Y. Medical Record*, Dec. 23, 1876.

A NEW REMEDY, CALLED DIGESTINE.—By A. F. Shelby, M. D., of Philadelphia. This is obtained from the gizzard of the domestic fowl (chicken) and is a specific for vomiting in pregnancy. I have used this remedy for twenty-five years, and it has never failed. It is also the most powerful and reliable remedy for the cure of indigestion (dyspepsia), and sick stomach caused from debility of that organ. It is useful in all cases where the pepsines and pancreatines are used, but with much more certainty of its good results, for it puts all those preparations, in my experience, in the background.

In complicated affections of the stomach, such as inflammation, gastralgia, pyrosis, etc., it may be combined with subnitrate of bismuth and opiates; and in diarrhœa and cholera infantum, with astringents, both vegetable and mineral. I have given the article to several prominent physicians, who have used it with the happiest results, among whom I may mention Professor E. Wallace, of the Jefferson Medical College; he gives me the result of seventeen cases as follows:

In vomiting of pregnancy, out of nine cases he cured six, and palliated two, and in one case the remedy was not taken according to direction, and therefore had no effect.

He used it in seven cases of sick stomach caused by chronic inflammation of the uterus; cured five, and two remained doubtful. He also used it in a case of very obstinate sick stomach, caused by an irreducible hernia, and says this was the only remedy that gave any relief.

We, who have some experience, all know that vomiting of pregnancy is a sore affliction, and in some cases almost unendurable, nay, indeed, putting life in jeopardy; but in digestine we have a remedy which will prove to be a great blessing to mothers, who, as yet, think vomiting must be endured as a natural consequence. If I am able, by this publication, to induce the medical fraternity to make use of the remedy, I am positive that a great boon will be conferred upon a class of sufferers who claim our sympathy.

The dose is from five to ten grains, hardly ever more than five, except in obstinate cases. For children, from one to five grains. My mode of administering it is in a spoonful of water or tea, or it may be strewn on a piece of bread and covered over with a little butter; It is however, nearly tasteless. In dyspepsia and in vomiting of pregnancy, I direct it to be taken half an hour or so before each meal. In other affections of the stomach and bowels, every two to four hours. I give it uncombined, except in complicated cases, as heretofore mentioned. The methods by which this principle can be obtained from the viscus are various. When I commenced to employ it, I used it in rather a crude state, by pulverizing the lining membrane of the gizzard; but it it requires too much care and precision in the drying and cleansing operation, in order not to destroy its virtues. There is also great inconvenience in obtaining the viscus during the heat of summer and extreme cold of winter, as temperature is one of the main things to be observed, in order to preserve its efficacy, purity and sweetness. Later, finding this mode of preparation unsatisfactory, and inconvenient for the above reasons, I consulted with Wm. R. Warner & Co., 1228 Market street, Philadelphia, who have prepared a form, designated digestine; its purity, and also its good effects, I can vouch for.

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Editorial.

The annual Commencement exercises in the different Medical Colleges of this city, held during the last week of February, excited if possible, more than the usual interest of such occasions.

The first to take place was the Cincinnati College of Medicine and Surgery, which was held on the evening of February 27th at Pike's Opera House. The large room was filled with as fine an audience, as any class of young men could desire to see. The exercises were of the usual character.

Prof. D. D. Bramble, Dean of the faculty in making his report of the condition and prospects of the College, took occasion to state that "the college had more than preserved its existence, and that it continued to prosper. * * * * * * This land contains already too many physicians. There are hundreds of men sent forth every year from Medical Colleges to scourge the land with their ignorance. The remedy lies in one direction only—make the requirements for graduation so difficult that incompetent men shall be discouraged at the very thresh-hold of the profession."

We are glad to know of the material prosperity, of any and all of our Cincinnati Colleges, but the above remarks by the Dean should receive the cordial endorsement, of every honorable man in the medical profession. It would give us sincere pleasure to be called upon to announce that the Cincinnati College of Medicine and Surgery had adopted a regular graded course of study, with which all her students would be obliged to comply, and that even on the thresh-hold of their course of study, satisfactory evidence of a good preliminary education would be required. The College that makes that announcement, will command the support of the best part of not only the medical profession, but of educated men in other professions and pursuits. Undoubtedly "this land contains already too many physicians;" and the best plan in the world to thin the ranks, is to elevate the standard of preparatory education and then of every subsequent examination. All honor and praise to the college that institutes the advanced system of medical education.

On the 27th of February there was a large meeting of the alumni of Miami Medical College held at the college edifice, on Twelfth street. About two hundred members of the association were present, many being from distant States, who had not forgotten their alma mater, and showed their love for her by their presence. It was the annual meeting for the election of officers, payment of dues and transaction of business of interest and profit to the profession. The newly elected officers are:

President—Dr. J. L. Cilley, of Ohio.

Vice Presidents—First: Dr. P. M. Williams, of Ohio, class of '56; Second: Dr. J. C. Ross, of Illinois, class of '57; Third: Dr. S. D. Meserve, of Illinois, class of '57; Fourth: Dr. D. P. Jackson, of Pennsylvania, class of '74; Fifth: Dr. J. L. Firebaugh, of Illinois, class of '75; Sixth: Dr. Allison Maxwell, of Indiana, class of '76.

Secretary—Dr. Wm. Judkins.

Treasurer—Dr. A. D. Bender.

Executive Committee—Drs. Wm. B. Davis, W. H. Falls and W. H. Wenning.

A resolution was introduced, and warmly supported by Drs. W. B. Davis, Cilley and others, the provisions of which were that the alumni pledged themselves to receive no student of medicine into their offices who was not possessed of a thorough English education. This resolution was unanimously adopted by a rising vote.

This really sounded like business. And our eyes involuntarily blinked and winked in anticipation of the millennial dawn they were about to behold in medical education. The fact is there is a general clamoring on the part of the profession all over the land, for the adoption by the colleges of preliminary examinations, and thereafter a graded course of instruction. The alumni associations are the great feeders of the various schools, and they are making their influence felt and we are glad to see their efforts turned in proper channels. We believe there is no college in the West, that is at this time better prepared in all respects to successfully inaugurate not only preliminary examinations, but a graded course of instruction to which every student that hankers after a Miami Medical College Diploma will be obliged to conform.

In the evening the association, the graduating class, professors, and a few friends met at the annual banquet at the Gibson House. The spread convinced us that the proprietors of the aforesaid hotel were inflationists of the rankest sort, in fact inflation was the first order of the evening, and although ample opportunity was afforded, the melancholy voice of the dyspeptic was silent.

Dr. B. Stanton, President of the association, having expressed his satisfaction that so many were present to testify their respect for their alma mater, congratulated the recent graduates upon successfully completing the prescribed course. The response on behalf of the class was made by Dr. J. O. McDowell, in which he paid a graceful tribute to the profession, and expressed a hope for the success of the various members of the class.

Judge M. F. Force, responded in a most eloquent manner to the toast, 'The Legal Profession.' He said he was not present to apologize for the law. He claimed to be one of its liegemen, and paid a willing homage to its sovereignty, Laws were a natural outgrowth of the community; they might be colored by the progressive changes among the people; they may be imperfectly formulated by legislatures, imperfectly announced by the courts; nevertheless they are the voice of the people, and this fact lends dignity to the act of the weakest official whose business it is to interpret or to enforce the requirements of law. Law is everywhere. It partakes in every transaction of life. It is a conservator of the piece, not only by settling but by preventing disputes. Where law does not exist there anarchy prevails. With law humanity has peace, order, the social system, the beautiful arts, and all the attainments of civilization.

Dr. Z. M. Humphrey of Lane Seminary responded to the toast 'The Ministry.' He discussed in a very *pungent* vein the distinction between a doctor of medicine and a doctor of divinity.

'The Press,' responded to by Richard Smith of the Gazette: "It was customary," he said, "for an editor to be called upon to answer to the sentiment that had been just announced. Possibly there was a mistake in this uniform custom. An editor was expected to know everything, but the antagonism between the professions of the physician and the editor might lead to complications. The editor might, perhaps, take upon himself to criticise too closely some points in medical ethics. For example, he might take up the subject of advertising and animadvert upon the rules of the medical profession in this particular. He would say: "It is all very well for us, as editors or reporters, to say that Dr. John Brown has shown great skill in his practice and will undoubtedly rise in his profession, but you as medical men will not allow us to go further and mention your business in the ordinary manner for a consideration." The editor might criticise this proceeding of the physicians as an interference with newspaper business, and he might, also, object to it as not affording the young medical man a chance to rise as rapidly as he could rise in another profession. Again, the editor might criticise the doctors on the point that the latter are acrimonious to a degree in their newspaper controversies. Newspaper men had been remarked on account of the savage personal disputes in which they were sometimes engaged, but for artistic and remorseless dissections of the reputations of each other, physicians could not be surpassed. Last of all, the editor might say to the doctors, with proper emphasis, "Gentlemen, please make your medicines palatable. You will make more money and we shall take more medicine." But when this is all said there remains much which even the editor, critical as he is, must praise in the medical profession. The faithful physician goes hand in hand with the clergymen. Often the physician has the greater task of the two. His labors are too frequently unattended with a reward more tangible than thanks. He responds to every call by day or night, and dies at last in comparative poverty. His relations with his clients are of the most delicate description. His care and anxiety are unceasing, and his struggles and disappointments before he attains a competence might fairly discourage one of another profession. The speaker then alluded to the progress of newspaper work as compared with that of other professions, and suggested that perhaps the time would come when a school of journalism, not to turn out editors as doctors were turned out of a medical school, but to give those who were to manage newspapers more correct notions of the responsibility of their position and of their relation to others, would be established.

Prof. Wm. Clendenin responded gracefully and briefly to the toast, "The Miami Medical College," and concluded by saying that the institution had never been in a more flourishing condition.

At the conclusion of the toasts and responses an oration upon the subject of "Vitalism and Vital Medication" was delivered by Dr. R. C. Bond, of Aurora, Ind.

The annual Commencement exercises of the Miami Medical College were held in Pike's Opera House, February 28th. The room was filled to its utmost capacity by the friends of the college and of medical education.

The following address by the Dean Prof. J. A. Murphy is a brief statement of the condition and future prospects of the college. It is certainly a very satisfactory exhibit.

DR. MURPHY'S ADDRESS.

LADIES AND GENTLEMEN: The exercises of this evening will close the seventeenth session of the Miami Medical College. One hundred and forty- three students have been in attendance on the lectures of the school; of this number thirty-five have been carefully examined by the faculty, and will receive the degree of Doctor of Medicine at the hands of the President of the Board of Trustees.

The prospects of the school are all that its friends can desire. Its steady growth in the estimation and confidence of the profession is marked by the improved qualifications of the students. This city affords unusual clinical advantages. I think I am safe in saying that it surpasses any Western city in the amount of clinical material. The large City Hospital, with four thousand patients yearly, and an average of three hundred and fifty daily in its wards, gives unusual opportunity to the staff to teach medicine as it should be taught, at the bedside. In addition to these advantages, the faculty examine and treat before the class daily a large number of sick. The young gentlemen who go forth to-night are not without experience in the observation and treatment of disease. The class has embraced the excellent opportunities offered. As some evidence of the qualifications of those we deem worthy of the honors of the school I may state that six of our class succeeding in winning places as resident physicians in the City Hospital at the late competive examination, while the seventh was won by a student of a rival school.

The faculty labors with an honest purpose to educate and qualify its students for the responsible duties of their calling. Medical teaching in this city is all that the honest and diligent student can wish. This school proposes in the future, as in the past, honestly and faithfully to teach the principles of medicine and cure of the sick.

In doing this it must and will be judged by the character and success of its alumni.

Much as the public and the press may rail at the facility with which doctors are educated and authorized to practice, we are free to say that the profession of medicine has no cause to hang its head in shame when it compares itself with other professions. The demand for a higher education is heard in the land. The medical schools of this city are not deaf to the cry. Among them I know that the Miami Medical College will not be behind in the effort to make progress in giving to the public well qualified physicians.

It is certainly very creditable to the faculty as well as to the students of the Miami College, that they are enabled to announce, that after a thorough competative examination, six out of seven appoinments on the house staff of the Cincinnati Hospital were awarded to students of their College."

The Secretary of the college informed us that the faculty had rejected a number of applicants for matriculation at the beginning of the session, by reason of insufficient preliminary education. These facts indicate a determination on the part of the faculty to heed the demand that is made for men of higher culture and superior professional attainments. In this connection we take pleasure in stating that the facilities for acquiring a thorough medical education are as great in Cincinnati as in any city in this country. The hospitals are large and contain an abundance of clinical material for daily practical instruction. The members of the attending staff, are generally men of ability and take an active interest in promoting the advancement of students in their studies. To the practitioner who wishes to refresh his memory and add to his stock of medical lore, the Cincinnati hospitals and colleges offer superior inducements and advantages. Diplomas were conferred on the following members of the graduating class:

Robert Henry Arrington, Illinois; William Orseaneth Barnett, John William Bell, Indiana; Boerne Bettman, Ohio; Albert Homer Burket, James Loyal Christy, David Thompson Cleland, Pennsylvania; Perry Ruble Crosswait, Iowa; John Ezer Dillon, Charles William Eddy, Ohio; Franklin Harmon Godfrey, Illinois; *Francis Ferdinand Hellman, Ohio; Calvin Rovera Johnson, Missouri; * Arthur Rose Jones, Alabama; George Lalor, New York; Charles Henry F. Lee, Ohio; Charles Henry Lindley, Kentucky; *John S. Marshall, Ohio; Samuel Erskine McClymonds, Pennsylvania; * John Otho McDowell, Ohio; Wm. Christian Miller, Ohio; Gallaway Garner Reagin, Illinois; Edwin Saunders Ricketts, Ohio; Andrew Watson Sellards, Kentucky; Jacob Stagle, Ohio; Wm. Getue Smith, Pennsylvania; Wm. Edward Stanton, Ohio; Grigg S. Stewart, West Virginia; Wm. Francis Thompson, Indiana; Benj. Alexander Vance, Pennsylvania; Robert A. Wallace, Pennsylvania; John Milton Welch, Illinois; Wm. Lycurgus Whitted, Indiana; Isaiah B. Wilson, Ohio; Samuel Vinton Wiseman, Ohio.

The address to the graduates was then delivered by the Rev. N. West, D. D., and was a glowing and masterly tribute to their chosen profession, replete with good advice. The address was warmly received.

The Commencement exercises were concluded with a valedictory address by Prof. E. Williams, on "The True Level" which was listened to with interest.

The annual Commencement exercises of the Ohio Medical College were held in Robinson's Opera House in the evening of March 1st. The house was densely crowded with the friends of the college. The address of the Dean very fully presented the highly prosperous condition of the college, as shown by the large class of graduates. In fact while nearly every kind of business has suffered more or less from the stringency, and general depression of the times, the Medical Colleges of Cincinnati, have been even more favored than in times when the country was financially prosperous.

After the distribution of diplomas came the distribution of prizes which has been made a leading feature of the commencement of exercises in this institution.

The following is the list of prizes, with the names of the gentlemen receiving them:

Prof. Bartholow's prize for the best oral examination in Theory of Medicine, a case of instruments of precision, taken by J. W. Hous, of Pymount, Ohio.

Prof. Reamy's prize for the best Report of his Clinical Lectures

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* Resident Physicians at Cincinnati Hospital for 1876—77.

at the Hospital and Dispensary, a case of obstetrical instruments, C. M. Galloway, of Xenia, Ohio.

Prof. Dawson's prizes—Gold Medals—Best Bandaging, T. B. McKerrihan, of Moundville, W. Va.; best Surgical Dissection, George Thomas Greer, of Cincinnati; best Surgical Drawing, J. C. Buttemiller, of Cincinnati.

Prof. Whittaker's prize for the best oral examination in Philosophy, a case of post-mortem instruments, E. S. Boland, of Sugar Grove, Ind.

Prof. Seely's prize for the best oral examination in Ophthalmology, a case of eye instruments, Simpson J. Harmount, Massillon, Ohio.

Faculty prize of $100 for the best papers in all the departments on the general examination, M. E. Woodling, Brodhead, Wis.

Hospital positions—Cincinnati Hospital: E. W. Walker, of Cincinnati; Good Samaritan Hospital: E. S. Boland, of Sugar Grove, Ind.; S. P. Grill, of Wooster, Ohio; John H. Samuel, of Poplar Plain, Ky.

Prof. Seely then delivered the valedictory address on behalf of the faculty. He chose for his subject, "Preliminary Training."

He began by the statement that there is nothing certain in life but death, and the next most certain thing was disease. It was not surprising, therefore, that the science and practice of medicine holds the earnest attention of all classes of people. Prof. Seeley then stated that they were assembled to give some information in regard to the pretensions of the eighty claimants for public confidence, and to show why the faculty indorsed the gentlemen who go out with the diplomas of the college.

He told the audience what was meant by a course of lectures, how each of the ten departments of medical science had an exponent in the faculty whose daily duty it was to teach his particular branch, in the hospital, at the bedside, when practicable, otherwise by the pathological specimen. After enlarging upon the facilities of the college for such teaching, he hoped the public might be able, with some degree of confidence, to accept the certificates of those now going forth.

The concluding portion of Prof. Seeley's address consisted of advice to the graduates, which was excellent in matter, and expressed in happy and sensible style.

WE take pleasure in stating that we have secured the assistance of Prof. Jas. T. Whittaker in conducting the foreign department of the LANCET AND OBSERVER. Prof. Whittaker is well known as the founder of *The Clinic*, and until lately its editor and brings hence to our aid a valuable experience. His first contribution will appear in our next number.

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Review.

The Microscopist. A Manual of Microscopy and Compendium of the Microscopic Sciences, Micro-Mineralogy, Micro-Chemistry, Biology, Histology and Pathological Histology. Third edition, rewritten and enlarged with two hundred and five illustrations. By J. H. Wythe, A. M., M. D., Professor of Microscopy and Biology in the Medical College of the Pacific, San Francisco. Philadelphia: Lindsay and Blakiston. For sale by Robert Clarke & Co. Price $4 50

The progress of Microscopic Science in conjunction with that of histology and pathological anatomy during the last decade, chalenges the admiration of men of learning and scientific investigators. And a microscope has become as necessary a part of a physician's armamentarium as the stethoscope or pocket case.

For the ready application of the microscope the student or practioner needs a convenient book of reference. And for practical every day use we know of none better than the one before us. It gives a concise description of the various instruments, with instructions as to their use and care, the methods of preparing textures for examination, the mounting and preserving of microscopic objects; the use of the microscope in mineralogy, chemistry, biology, vegetable histology and botany, etc.

The plates are real works of art and handsomely illustrate the volume.

A Practical Treatise on Diseases of the Skin. By Louis A. Duhring, M. D., Professor of Diseases of the Skin in the Hospital of the University of Pennsylvania; etc. Philadelphia: J. B. Lippincott & Co. For sale by Robert Clarke & Co. Price $6 00

This is a concise, practical and useful volume, just such a book as is needed by the general practitioner in order to obtain a clear insight into and knowledge of the important facts connected with skin diseases and their treatment, the author leaves to others the discussion of unsettled and disputed questions in the domain of dermatology. Dr. Duhring having been a pupil of Hebra he very naturally adopts his classification. Making slight modifications in order to conform to the change of type as the diseases are seen on this continent.

The work fairly represents the recent and important advances made in the pathology and treatment of skin diseases, and allied affections. The book is handsomely issued by the publisher.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. Von Ziemssen, Professor of Clinical Medicine in Munich, Bavaria. Vol. VII. Diseases of the Chylopoetic System, together with the chapters on diseases of the Naso-pharyngeal cavity and Pharynx, Laryngitis Phlegmonosa, Perichondritis Laryngea, Ulcerations and Tumors, and Neuroses of the Larynx. By Professor Herman Wendt, Leipzic; Prof. W. Leube. of Jena; Dr. O. Leichtenstern, of Tübingen; Prof. Arnold Heller, of Keil; Prof. H. Von Ziemssen, of Munich; and of Dr. A. Steffin of Stettin. Albert H. Buck, M. D., New York, Editor of American edition. New York: William Wood & Co.

Until of late years comparatively little attention has been given to diseases of the larynx and pharynx, but as these cavities have become accessible by new methods of examination, more light has been shed upon them by anatomical investigations, and a new field in medicine is being rapidly developed. Consequently this volume of this great work possesses special interest, as illustrating what has already been accomplished, in this direction. The sections on this subject are written by Professors Wendt, Von Ziemssen and Steffin.

The chapters on diseases of the stomach and intestines are contributed by Professors Leube, Lichtenstern and Heller. And give a very satisfactory resume of the symptamatology, etiology, pathology and treatment of the diseases that especially pertain to and affect the stomach aud intestines.

A *Directory for the Dissection of the Human Body.* By John Cleland, M. D., F. R. S., Professor of Anatomy and Physiology in the Queen's College, Galway. Philadelphia: Henry C. Lea. For sale by Robert Clarke & Co. Price $1 25

This is a very convenient little manual for the use of students in the desecting room. The directions given as to the use of instruments, and the order of dissection of the body, and the method of procedure in dissecting the different parts of the body are especially valuable to the young student. We think the value of the book would have been greatly enhanced by the introduction of some good cuts.

The Art and Science of Surgery. By A. J. Howe, A. M., M. D., Professor of Surgery in the Eclectic Medical Institute; etc. pp. 886.

For some years Prof. Howe has been accorded the distinction of being the highest authority in Surgery in the Eclectic School, nor is it rare in this city to hear men of standing in the regular school say of Dr. Howe, "he is a good Surgeon." The author has produced a work that is largely an exponent of his own experience and practice, and one that is especially suitable for the use of students; his teachings are conservative and liberal in their character. The subject matter is usually unexceptionable, but we regret to see it printed on the poorest quality of paper. And many of the illustrations, more prominently illustrate poor mechanical skill than anything else, and altogether the book has the appearance of being put together as cheaply as possible. And as if the publisher was determined to be right up to the requirements of the day in at least one of the essentials, he has catalogued the work at $7.00.

Contributions to Reparative Surgery. Showing its application to the treatment of deformities, produced by destructive disease or injury; congenital defects from arrest or excess of development; and cicatricial contractions from burns. By Gurdon Buck, M. D., New York: D. Appleton & Co. For sale by Robert Clarke & Co. Price $3 00

The author very pertinently says: there is no department of surgery where the ingenuity and skill of the surgeon are more severely taxed than when required to repair the damage sustained by the loss of parts, or to remove the disfigurement produced by destructive disease or violence, or to remedy the deformities of congenital malformation." The principal part of the monograph is devoted to the consideration and treatment of deformities and lesions of the face, a region where plastic surgery has achieved its greatest triumphs. The engravings accompanying the text are equal if not superior to anything of the kind we have seen in a book of this description, they are a credit to the artist and publisher. A source of joy and satisfaction to the author, and a well spring of pleasure and instruction to the reader. The clinical report of cases are not only instructive but intensely interesting to the reader.

A Treatise on the Theory and Practice of Medicine. By John Syer Bristowe, M. D., London, F. R. C. P., Physician to St. Thomas' Hospital; etc. Edited with notes, by James H. Hutchinson, M, D., one of the attending physicians to the Pennsylvania Hospital; etc. Philadelphia: Henry C. Lea. For sale by Robert Clarke & Co. Price $6 00

While there seems to be no actual demand on the part of the medical profession of this country, the author has given us what us what is destined to become one of our most popular text-books for the use of students.

There are many points of excellence in the work that attracts the attention of the reader. Among others: the clearness of the author's diction and the absence of clinical reports of cases. While particular prominence is given to the pathology, morbid anatomy and clinical phnomena of disease. The work is an excellent expose of our present knowledge of the theory and practice of medicine, it contains nearly 1100 pages, is printed on good paper, and well bound in leather.

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Obituary.

EXTRACT FROM PROCEEDINGS OF MIAMI MEDICAL COLLEGE ALLUMNAL ASSOCIATION.

A. D. Bender.—Mr. President and Fellow Alumni:

Since our last meeting it becomes our painful duty to record the death of one of our esteemed members, Dr. Daniel Boone Williams, of this city, who died on the 5th of Nov., at Annaheim, Los Angelos county, California, of Tuberculosis. He had been ill for more than two years, his illness beginning with a cough, thought at first to be laryngeal only—but soon his digestive system became involved, and the rapid emaciation following gave dire foreboding of the dread condition too soon, alas, to arrive. He went south for a change of climate, but returned home after one month's stay in a worse condition—a cavity having now formed in his right lung and laryngeal ulcers having made their appearance. After remaining some months at the home of his uncle Dr. E. Williams, he left here last spring for the far west, in the hope of finding relief from his sufferings which at that time were already very great, being aggravated by neuralgic pains—the result of gunshot wounds received during our late war whilst nobly battling for his country's welfare. That sunny land he sought knew no relief for him—it was destined by that Power above that he should find it in a more beauteous land—there it would be lasting—there he should feel as though he had never known what it was to suffer—all would be in the forgotten past. Although his sufferings were very great, yet he bore them with fortitude, and was content.

In his greatest torments he was still kind and pleasant, and in good humor. It is my great delight to recall him as my dearest friend and I always felt highly honored to be his boon companion—he was so kind and good, to know him was to love him. His course in life was straightforward, never turning; not a ripple in the flow of good deeds. Be struggles gigantic as they may, his powerful will, his great mind would gain a victory over all. Nothing was too small, nothing too great for his insatiable ambition. He was a close observer and never tired in his search after knowledge. He was withal a pure-minded gentleman and a good christian, and by his conversation and moral influence he attracted all that came near him, and none left him but with the desire to meet again. Though bodily we are deprived of his presence, still, in spirit he will ever remain with us. Allow me to offer the following resolutions to the society, their acceptance to be voted upon.

WHEREAS it has pleased the Almighty to take from us, in the bloom of early manhood, our esteemed colleague Dr. D. B. Williams, of this city, formerly of Bedford, Ind., therefore be it

Resolved, that his family have lost in him a dutiful son and a kind and affectionate brother.

Resolved, that we regret this loss of a highly honored friend and faithful companion and who was a credit to our Alma Mater.

Resolved, that the profession lose a valuable member, a great mind, an untiring student and one who was destined to become a great light in the medical world.

Resolved, that we tender our sympathy to the family in their grief; that a copy of these resolutions be sent to them and a copy be published in the LANCET AND OBSERVER.

After remarks by other members of the Association, the resolutions were adopted.

Dr. D. B. Williams was a young man of unusually fine attainments—possessed of excellent natural abilities, improved by education and travel—beloved by those with whom he came in personal contact, he was on the eve of a brilliant professional career when he became a victim to that fell destroyer, consumption.

THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

Vol. XX.—APRIL, 1877.—No. 4.

Original Communications.

Article 1.—Commencement Address.

By the REV. N. WEST, D. D.

Delivered before the Trustees, Faculty and Graduating Class of the Miami Medical College in Pike's Opera House, Feb. 27th, 1877,

Mr. President, gentlemen of the faculty, and graduating class, and ladies and gentlemen:

I speak, to-night, in praise of the medical profession; a tribute not less difficult to be adequately brought by any one outside the profession itself, than abundantly deserved by those whose culture forbids the mention of their own merit: "Let another praise thee and not thine own lips" is an excellent rule, and we recognize as fully the justice of the permission it grants, as the propriety of the prohibition it enjoins.

To the great mass of society the profession is known only as it comes in contact with some individual want, or alleviates some individual distress. The popular conception of the "Healing Art" is, that the issues of life and death are in the physician's hands, and that, unless he performs miracles of cure worthy of omnipotence and omniscience, his practice is, for the most part, a criminal trifling with the sanctity of human life. The best practitioners are often held responsible for results which the decrees of God and inviolable laws of nature necessitate, and no human skill can avert, and the conclusion is ignorantly reached by the many that, on the whole, the profession is an injury and not a benefit to mankind. The sentiment is a reproach to the intelligence of all who entertain it, and is contradicted by the records of the world. Long ago, the line of Ovid: "*Non est in Medico semper relevetur ut œger,*" – the cure of the patient is not always in the physician's power—was an expression of universal experience, and our modern coplaints against the faculty are as little creditable to our good sense, as they are oblivious of the wonders the profession has wrought for the relief of mankind.

Unless the histories of medicine are a pure invention, like the fables of ancient mythology, the science of medicine wears a crown to-day more brilliant than that which astronomy boasts, and rests on a basis more strong and enduring than the rock-ribbed foundations of Geology itself. Next to those who bore witness to the christian truth, its heroes are among the foremost benefactors of the human race. The Egyptian Sphynx with its mystic face, the pyramids that skirt the Lybian shore, and the signal-tower of Babel, are young in comparison with this. Its date remounts to the gates of Eden, whence it arose with the science of religion itself, springing from the common ground of a moral catastrophe to which all subsequent catastrophes are due, the violation of that moral hygiene the sum of whose laws is the Divine will, and the transgression of which was the first historic cause of all human maladies and death itself. It is a profound fact—not matter of natural science I admit, but going beyond it, and resting on a divine testimony—that human sickness, disease, and death, are the result of "sin." The natural possibility of human mortality was only incident to a perfect human creation. Its necessity, however, was a judicial infliction for trangression of the laws of moral Hygiene, a contingency against which man might have vindicated his title to perfect health of body and soul by persistence in moral obedience. The medical profession has its roots in that first catastrophe in which body and soul, alike, shared the effects of the disruption of that harmony which supervened upon the first human disobedience. Nor is it less wonderful that fundamental symptoms of disease and dying in the body are identical with those of the spirit—violent pain, feverish unrest, gloomy depression, waste, and abolition of normal functions, or that the signs of convalescence in the one are analogues of the signs of convalescence in the other. The German scientists have noticed the profound inter-relation and correspondence between mental and bodily sickness, and mental and bodily recovery, denominating the vital disturbance in both cases an "*ab*-leben," or living down, a progressive decay, the other an "*auf*-leben," or living-up, a progressive restoration. It demonstrates the intimate connection between Physiology and Psychology, and the reciprocal Pathology, if I may so say, of both. If any one therefore, will seek the true occasion for the rise of the medical profession, he will find no sufficient explanation of this in science itself, but in an historic fact antecedent to all science, the first violation of moral laws imposed upon man, by his Creator. It involves questions which do not belong to medical science, as such, but to a totally different department of investigation—none the less important on this account, but all the more worthy of moral consideration, as throwing a peculiar sacredness around the profession itself.

The remotest authentic account we possess of the "Healing Art" is a Biblical record; now 3500 years old, or dating 1700 before Christ. The less authentic and somewhat earlier accounts, deciphered by Egyptologists like Champollion and Brugsch, are but records of a science whose immemorial triumphs had even then exalted it to the dignity of a sacred profession. That remarkable remnant of medicine found in the writings of Moses, the system of public and domestic Hygiene, enforced by a religious sanction, is acknowledged by the lights of modern medical science to be of unsurpassed beneficence and wisdom. The prophet-legislator of the Hebrews has recapitulated a Leviticus of Hygienic precepts, whose theories of prevention, cure, and improvement, are admitted, on all hands, to rest upon principles of scientific and incontestible value. The antiquity and progress of the profession are historic proof against the charge that it is a mere trifling with sickened and dying humanity. It was the first necessity for the body, as religion was for the soul. Four thousand years, it claimed and wore a sacerdotal character. Two-thirds of that time the physician and the minister of truth were the same person, and the religious temples schools of medicine. Fifteen centuries of the christian era passed away before that necessary divorce between Sacerdotalism and science took place, which the ignorance of the former and the progress of the latter had made inevitable—a divorce of incalculable blessing to the world.

India and Egypt shone pre-eminent in medical science 2000 years before the christian era. Greece, 1200 years before Christ, reared temples to Æsculapius. The Argonautic heroes, and the chief commanders at the seige of Troy, were professional teachers of medicine. To be one of the Asclepiadæ, a descendant of Æsculapius, "the mild artificer of help from pain, the demigod that wards diseases off," was a passport through the world. The blooming Age, or "Rose of Pericles," the classic era of Demosthenes, Plato, and Aristotle, the palmy days of the Greek republics, nearly contemporaneous with the age of Confucius, was the culminating period of Greek medicine. The great Hippocrates appeared, whose aphorisms remain to this day, imperishable memorials of his skill, and whose scientific deductions have stood, unscathed, the test of 2000 years. Roman medicine culminated 600 years later in Galen, less followed though equally renowned. His fame contributed to enhance the transient luster of the "Antonine Age" in history, the age of Marcus Aurelius, the brightest episode in the downfall of the Western Roman Empire. In the Eastern or Byzantine Empire, Paul Ægineta, A. D. 600, appeared as the last and most celebrated of the Byzantine physicians and surgeons, imparting an impetus to the science, which continued its progress through Saracenic and Turkish invasions, till the capture of Constantinople in 1453. Under the munificence of the Caliphs of the middle age, Haroun-al-Raschid standing forth as chief patron, the splendor of Arabian scientific medicine illuminated the Moslem ascendancy in its three chief centers of Bagdad, Cordova, and Cairo. Medical schools, hospitals and libraries arose, everywhere, beside the glittering Mosques. Surgery, physiology, anatomy, chemistry and pharmacy, received a new impulse. The Spanish cities, alone, boasted seventy libraries and 150,000 medical works. It was reserved, however for the era of the great reformation in the sixteenth century to inspire medical science with new life, such as never before was felt, and the influence of which will pass on to the latest times. The flight of the Greeks from Constantinople, when it fell, contributed to the revival of medicine, as well as of letters, not only in Italy, but also in

England, Germany, and France. The spirit of free investigation that sparkled in the age of Charlemagne was a forelight of the blaze that burst forth in the times of Leo. X. the phospor of a coming sunrise that broke, in its effulgence, on the night of a thousand years. Ignorant Sacerdotalism had degraded the medical profession. A wooden-headed clergy had cultivated pathology and therapeutics by the syllogisms of Aristotle and the rules of the canon law; much what as if a man should study anatomy by the glory-holes of glass-furnaces and rolling-mills, geology by the debris of a brick-kiln, and botany by hay-stacks in the barn-yard and stubble in the corn-fields. The lever of Laurentius Valla, the sledge-hammer of Luther, and the broad-axe of Calvin, brought the blind idol of dogmatic authority, in things too high for it, down to the ground. All along the Mediterranean shore, the murmur of a new conflict went sounding through the nations, and woke to life the spirit of a new investigation which ran, magnetic, through all the European Universities. The deliverance of Europe from sacerdotal interference in science was a victory which transferred the center of the scientific empire from Rome to London and the institutions of Great Britain and Germany, and afterwards to those of France.

It were folly to think that a profession so vast and difficult, threading its way by the clue of observation and experiment alone, through mazes, compared with which the labyrinth of the Cretan Minotaur was a joke, and contending with astrological and necromatic superstitions, dark as night, should not be amenable to the accusation of serious mistake. It never boasted that it was Minerva panoplied in perfection from the brain of Jove, still less that it is a divine revelation and its practitioners infallible men, and still less again that it is proof against all imposture, or the wicked disgrace of its own diplomas by unworthy men. Medical science is a *creation*, built upon other sciences to which the profession gave birth in order to find the means necessary to bring itself to perfection. It behoved other sciences to exist and contribute their treasures back to their parent source. Every question settled was a question planted around which new questions were continually springing, a mystery solved opening a score of new problems. For this time, accumulation of facts, and practice, with cautious test of new methods, were necessary, all which the pretender despises, and not mere theory, blind conjecture, and sharp trade, all of which the pretender employs. When, therefore, disease and death put on new forms, the opportunity presented itself to the rash speculator, not less than to the daring pretender, and greedy empiric, to proclaim their philosophy, display their nostrums, advertise their inventions, pursue their treatment, and carry off their ill-gotten gains. "*Galen dat opes*,"—"medicine makes rich,"—was their supreme motto and inspiration. Like Mephistopheles in Faust, they thought "the spirit of medicine is easy to be caught," and that "he who avails himself of the passing moment, is the proper man." What wonder, if the public disappointment should provoke the brilliant shaft of Voltaire, and the satire of Moliere and Montaigue, and that the proverb, "flee doctors and drugs if you wish to be well." "*Fuge medicos, et medicamenta, si vis esse salvus*," should actually have been fathered by one of the medical profession himself? From such abuse of science charlatans have their genesis and pedigree. But to cast reproach on the profession for this, is unjust as to say that the science of theology is a sham because so many who profess it know nothing of what it requires, or the pulpit a fraud because so many are incompetent who wear the clerical title. Society has but one duty to perform toward the medical pretender, the pill-and-worm doctor, the slow poisoner, bone-setter, witch-finder, patent medicine vender, and advertizer of high crimes against God and man, motley hybrid of imposter and vagrant, wandering about sometimes in the garb of "country-clergyman," at others, in that of a "city philanthropist," whose only right is to a lamp-post and halter. It is to treat him as the outcast of his profession, a murderer of innocent victims, excommunicated for his depravity and crimes against yourselves and your children—a violator of that commandment "Thou shalt not kill," whether by slow poison, lies, or quick steel—a commandment the most readily recognized by all as of universal obligation. I think you will be pleased to know that in Egyptology, the hieroglyphic character that represents a charlatan in medicine is the figure of a "duck," that waddling spoon-billed fowl of the barn-yard, the phonetic translation of which is—"Quack!"

I praise the profession for its matchless victories compared with which all its honest mistakes are as light dust of the balance. To medicine the planet is indebted for the arrest, and well-nigh complete expulsion, of those fearful scourges with which the dissolution of morals, and convulsions of dying nations, have visited humanity. How realize, to-day, the Peloponnessian plague, so vividly described by Thucydides, contemporaneous with the corrupt decline of Grecian life; or those described by Roman authors contemporaneous with the death-throes of the western empire; or that nameless Arabian rot sprung from the Mohammedan invasion of Europe; or that spreading leprosy which spotted the crusaders' time? How measure, to-day, those fearful and outbreaking diseases of insanity, lycanthropy and vampirism, or the untold horrors of of the three appalling epidemics the "black-death," "sweating-sickness," and "small-pox," which closed the gloomy night of the middle age, and left their marks this side of the reformation? Find fault with the medical faculty! As well find fault with the final charge of Wellington's guards at Waterloo, or the English light horse at Balaklava! When death, like a huge dark vulture, hovered, sailing in the air, and shook plague, poison, and disease, from its wings, all over the face of European society, and a pestilential breath swept like a blast from the fetid nostrils of the destroyer;—when 3,000,000 a year, of human victims succumbed to their fate—when dissolution defied arrest, and the mortuary pall hung over every home now a sepulchre, and despair alone answered the piteous cry for help; it was then the medical faculty came to the rescue of suffering humanity, and Europe, to-day, redeemed by its skill, celebrates in statues and monuments, the deliverers of its cities and homes from præternatural foes no armies could conquer. Over six thousand devoted practitioners, whom the malaria of death could not deter from danger, fell a sacrifice to their heroic fidelity and zeal. And then came Jenner!—I am proud to know he was the son of a clergyman. Jenner! born and reared in the cow-pastures of Gloucester—fame has no niche in her temple too lofty for *him* to occupy, the nations no trumpet too loud to sound his praise! The "gilded butt for piercing arrows of detraction," he spent his fortune and his life for the salvation of men! Orion in the heavens is not more illustrious among the constellations, than he in your scientific galaxy. Sooner shall Lyra loose her strings and make music no more, and Andromeda exchange her shining veil for mourning, than the name of Jenner shall be forgotten! What bloom untarnished, and what beauty, has he left upon the maiden's cheek! What purity infused into the yeoman's blood! What health and happiness in homes where

Variola knocks to find an entrance, and Jenner, by the living and protecting mouth of the profession, thunders *No!*

During the last century, medical science has been redeemed, to such an extent, from superstition, speculation and empiricism, that it now stands among the exact sciences, built upon the solid basis of fact and demonstration. Parë, Bœrhaave, Berzelius, Morgagni, Harvey, and Linæus, have each been followed, respectively, in surgery, materia medica, chemistry, anatomy, physiology, and medical botany, by a shining train of scientific observers who have achieved universal renown. Once, the physician stood outside the temple of the human frame, baffled to find his way to the interior. "Post mortem" was his only guide. Now, he masters all. The laws of light, heat, and sound, electrical and chemical test's, lenses, and a forest of new instruments, with new methods, enable him to read the interior of the living man more truly than if dead. He puts his instrument upon your eye, and spies the secret of your brain, and upon your breast and tells you the condition of your heart and lungs; the way you breathe, the circulation of your blood. It is as if a man should look down the chimney and describe the contents of the cellar, plant his ear at the front door and repeat the whisper in the garret or the parlor. Your whole nervous structure is so completely at his will, that he can measure the velocity of thought and sensation along the telegraphic lines inside. He maps you out accurately as the engineer a mountain. His microscope unfolds the structure of your finest tissue. His spectroscope pursues the drug he gives you, to the remotest corner of your frame. The precise force of each muscle is determined, the feeblest pulse-beat, the faintest sigh, the transformation of your food at every step, the disposition of every vital organ and process. He sends new currents through your languid frame to give you life, and, by the vapors of his anæsthetic agents, extracts a tooth, resets a fractured limb, or cuts away a shoulder-blade, or splits a skull, with perfect safety, and without a consciousness of pain. It is all the triumph of pathological anatomy, organic chemistry, electro-physiology, and conservative surgery. In materia medica and therapeutics, the drugs, or agents of remedy, once occupying the chief place in the remedial armament of the profession, have been remanded to a subordinate position, the result of physiological research, chemical analysis, and clinical experience. It is fortunate for us, and for the druggist too! The old prescription was a whole apothecary's shop, a whole dispensary in itself, born of compounds and farragos, like that illustrious and historic "Theriacum," composed of sixty-six different ingredients, some of which I name, to be taken twice a day for seven years, if necessary, externally, internally, and eternally, "dose doubled at the full moon," in desperate cases; to-wit, some twenty different vegetables with as many minerals, balsams, and gums, with squills, carrot-seed, liquorice, turpentine and cayenne pepper, powder of roasted brass, poppy-juice, white wax, calamus root, rhaponticum, castor-bean, gentian, horehound, attic honey, ginger, paregoric, Lemnian earth, owl's blood, and Falernian wine!—said to be *excellent also as a tooth-powder!* It is one of the glories of the profession that, notwithstanding the reputed virtues of the compound, commensurate with the cure of the whole Iliad of Trojan woes, it was consigned to its grave 500 years before the Reformation, with the head-stone "died of exhaustion," the whole pharmacopæa standing round as chief mourners! Peace to the shades of Dioscorides and his Theriacs! The profession accepted progress? I beg pardon of the profession — the scholastic era will furnish our medical friends with a heavier illustration against the theologians! The revolution in materia medica and therapeutics has made the recurrence of illusory compounds almost impossible, and established practical medicine upon the immovable basis of clinical experience alone. It has done more by its profound study of physiology and pathology, anatomy and chemistry. It has made the *foresight and prevention* of disease the great and final aim of the profession. To this end all scientific study is concentrated. Hygiene, and not medication, is the word that rules the hour. It is the harmony of science with art, theory with practice, and experience the key-note of both. The signal triumphs of that branch of the profession, of such unspeakable importance to the birth of the human race, and redeemed from profane hands by the labors of Recamier, Atlee, Meigs, Sims, and Battey, I pass by.

The profession is not less meritorious, as one of the noblest auxilliaries to natural religion, and the high verities of the christian revelation. I am aware the charge of materialism, atheism and infidelity has been brought against it, and the announcement made that its scientific conclusions subvert the three great truths of natural religion, viz: God, the Soul, and Immortality, and by consequence christianity itself. I am aware also, that some of the profession in common with others, have asserted this folly. But medical science as such is no more responsible for this than are theology, metaphysics, ethics, astronomy and geology where like folly has been committed. Astronomy is not atheistic, because La Grange boasted he could not discover God through his telescope, nor is medical science unbelieving because Moleschott and Maudsley cannot find the soul beneath the scalpel and microscope, or Bastian and Büchner detect it, by chemical tests. The bloom of a rank sun-flower planted over a grave, or the trump of fame, or the perpetuation of personal influence, or the succession of generations, is not the only immortality, because Oken and Spiller view it in this way. Thought, moral emotion, and religious belief, are not secretions of matter, as bile is from the liver, as Cabanis thought, or the result of currents of electricity generated in the cells of the gray matter of the brain,—illusions like phosphorescent "will-o-the-wisps" and "jacks-o-the-lantern," floating on the quagmires and bogs,—because Vogt went mad. This is not science, but the perversion of science. I submit it is not the province of the medical science as such, to decide upon the evidences of divine revelation, any more than it is the province of theology to decide upon the facts of science. I submit also that faith in a divine testimony is one thing, and faith in conclusions drawn from the study of physical phenomena is quite another, and that there is no conflict between them. The limits of the natural sciences are all girdled with dark boundaries of mystery into which science cannot penetrate, while yet the light of science blends with the light that bursts by revelation, from the dark and deep beyond.

The maxim that "*to the physician as a physician, the soul is unknown,*"—"*medico, qua medicus anima ignota est,*" is untrue even in a scientific sense. From the beginning to the present time, the intelligent spirit has ever been recognized by the profession, as an independent self-conscious personality, endowed with will and power, distinct from matter, and accepted by the physician, as a cooperating cause, either with or against his treatment, according as he has taken a right or wrong view of its relations to the body, in sickness and disease. It is Aristotle's "Sailor in the boat," the "Unknown Agent" of Hippocrates, Galen's "Mover of the Body," Stahl's "Vital Principle, "Broussai's "Algebraic's," and Carpenter's "Immaterial Essence whose determinations react on the living organism." The collective phenomena of life are not all explicable merely by mechanical, chemical and animal action. Many mysteries of nutrition, growth, disease, morbid affections and cure, admit only of explanation by recognizing it as a distinct factor, different from the house it inhabits. It is another of the glories of the medical profession that it has demonstrated the impossibility of the materialistic hypothesis which makes human faith and thought dependant on matter, and throws the whole force of science in favor of a self-conscious spirit surviving its decay and dissolution. It has established the fact that no possible explanation of *mental* phenomena can be founded on the hypothesis which attempts to evolve or derive these phenomena from *physical* processes. The skillful anatomist will cut away a whole hemisphere of the brain, slice by slice, and find the Apostle's Creed or the Ten Commandments, faith in God and hope of immortality, with all the mental faculties, just as strong as before the chloroform and knife began their work. The living spirit is the same, its creed the same. Its etherial essence survives the knife, the martyr's flame, the tomb!

When you think of physicians, remember that Linnæus the father of botany, Cuvier the constructor of the most comprehensive system of the universe, and Sir Humphrey Davy the brilliant chemist, were physicians who like Volta, Kepler, Galileo, Bacon, Leibnitz, Newton and Faraday in other departments, were religious men, and that in the ranks of no other profession are found brighter examples of the christian faith. It is Sir Humphrey Davy who says: "I envy no quality of the mind or intellect in others, be it genius, wit, power or fancy; but what I deem most delightful and useful to me is a firm religious belief, for it makes life a discipline of goodness, creates new hopes when all earthly hopes vanish, throws over the destruction of existence the most gorgeous of all lights, awakens life in death and from corruption and decay calls up beauty and divinity." It will be sometime before the medical profession consent to regard these sentiments of the great chemist as combinations of oxygen and nitrogen, hydrogen and carbon, illuminated by streaks of electricity shooting through the gray matter of the brain!—or that, "in the beginning" an imperial quart of oxygen, at 92° Fahrenheit, "created the heavens and the earth!"

The dignity and sanctity of the medical profession call for universal acknowledgement. Its chief excellence is, not that it is scientific, but that it is redemptive. The physician is not only the interpreter of Nature inquiring at her oracle and with a noble independence of mind sacrificing all prejudices and theories for the sake of truth, but he is the minister of Nature ordained to preside in her temple, proclaim her mysteries of healing, and offer up his life as incense at her shrine. He is more. He is a messenger of mercy to man, not less than an angel of knowledge, in the sanctity of a service which consoles the sufferer, takes from disease its pain, restores health to the dying, and robs death of its temporal sting. "The profession of the physician," says Thomas Carlyle, "is radically a sacred one, not only in itself considered, but is connected with the highest priesthood of healing the world ever saw, and is itself, the acme and outcome of all priesthoods and divinest conquests here below." I endorse that sentiment, not only as just, but is founded on historic fact, and add with Dr. Russell of the Royal College of Physicians in London, that "In the modern estimate of civilization, sufficient value is not given to the medical profession, the most God-like function that can be exercised by a human being,—a function discharged in its ideal perfection only by the Son of Man!" In graphic and beautiful words, DeQuincey describes the sanctity which attaches to it, in Eastern lands. "From Barbary to Hindoostan, from the rising to the setting sun, no traveler is more secure than the *Hakim* or physician. As he advances on his route, the news flies before him. Disease is evoked on as by the rod of Amram's son. The beds of the sick of every rank are ranged along the road sides, and the dispenser of health, or relief, moves through the prayers of hope on the one side. and the praises of gratitude on the other." But above all, it is the "Kohinoor," the central gem of the profession, that the most benevolent Being who ever trod our planet, introduced himself to the attentions of men as the good physician, and consecrated the healing art, as a symbol of the saddest pathology in which "*sin*" is the one disease, and that miraculous therapeutics in which "*Himself*" is the one medicine for mankind. Since then, the aroma of his name has floated around it, like the scent of the rose around the vase and it perfumed adorned. In the words of Dr. Willis, "the servant of religion hath not more of true sanctity about him than the good physician. Of old, the practice of medicine was a service rendered in special temples to the deity. It is not extinct yet upon earth, but has its ministering priest, ennobled by Christianity, in every worthy member of the profession." In the name of humanity, in the name of civilization, in the name of every sacred interest, why is it that enlightened society does not rise in its might, and compel a legislation, from all our Capitals, which shall protect a profession of such sanction and dignity, built on such science, and pervaded with such high responsibilities, — a profession whose very name is the trumpet-note of rendezvous for the helpless and ignorant, the diseased and the dying,—from the prostitution of the advertising impostor in religious and secular journals, and from the mercenary practices of the marauding and murdering charlatan? In all the older civilizations, the measure of respect and protection for the physician, not less than for the prophet, was the index of the moral weakness or vigor of the social state. From this alone the fate of nations was foretold. It is still, and will remain, the test of our intelligence, our manners, and strength.

The moral, confidential and self-denying relations of the profession to society claim our highest regard and utmost consideration. Its universal benevolence, untiring devotion, its perpetual burdens and trials, the tax on its sympathies, anxieties and cares demand a recognition, among all classes, which only the basest ingratitude can with-hold. When we reflect on what it has done for the human race, and that now every family, with scarcely an exception in christendom, is more or less visited by a physician, that no sooner does nature call for help, or injury and disease appear, than the physician is summoned to our aid, that wherever wretchedness and death confront us he is at once by our side to minister to our relief. I say, when we remember these things, there is no recompense too great, and no esteem too high for us to render, or for him to receive. What intimate relations, and what serious responsibilities! He enters into our most secret domestic sanctities. He comes to us when caution is disarmed by affliction. Our sources of disease are oftentimes domestic and mental troubles, and he becomes the custodian of what we would hide from our nearest friend. We receive him as an angel of God, to do us good. His honor, as a gentleman is the gaurantee of our trust and our peace. We look on him as the friend of religion and morality, and feel safe in his hands. He mingles with all varieties of men, visiting not only the mansions of the rich but the hovels of the poor, opening human hearts, dispensing remedies, and scattering sunshine in his path. He " heals our diseases, and redeems our life from destruction." "In all our afflictions, he is afflicted." The complaints of the sick, the murmurs of the impatient, the criticisms of the uncharitable, the moan of the sufferer, and the lamentations of the bereaved, are ceaseless in his ears. Calamity strikes us, he becomes our friend. and seeks to relieve our spirit by consolations imparted from his own. He makes our wishes and wants, our interest and advantage, his care. With scarce an hour, or a home, he can claim as his own; he waits, a servant at our call. By day and by night, in summer and winter, in sunshine and storm, early and late, at midnight or noon, distant or near, sick or well, he moves among us, living not to himself, but to us, burdened with a thousand anxious thoughts, pondering the mysteries of our own ailments, and how the soonest to restore to us the blessings of health and enjoyment of family and friends. He "keeps vigil over mortality." He presides at the birth of the human race, attends by its side every step of its way, and stands at its bier. The cradle and the grave are the bounds of his practice, the living and the dead his debtors forever. He is the hope of the suffering babe, the strength of the old man crowned with silver hair, the mother's life, the father's gratitude, the brother and sister's joy. To him the eyes of the wounded are turned on the field of battle, and on the hospital bed. The prisoner in his cell, and the culprit on the scaffold, alike acknowledge his care. I avow it. On every side, the memorials of the benignity of the medical profession, arise in every place, to attest its self-denying fidelity and zeal. The breath of its universal benevolence salutes all mankind. No ministry has done more to extend the boundaries of human knowledge, none more to alleviate the sufferings of the human race. Humanity has no wealth adequate to its compensation, no gratitude sufficient for its reward.

Let society cherish then, and exalt its medical community. Treat your physician as your friend, a brother in your house. Accord to him his rightful place, side by side with the true and honest servant of religion. Let "Epaphroditus" and "Luke" be equal brothers at your social board, and equal sharers of all your hospitalities and regards. You might lose an estate and live well without it, a place of influence or trust, and time would restore it. But, what compensation can family or society offer for the lack of a good physician, in a critical hour? How many eyes now sparkle with the luster of life that, but for him, had been closed in darkness and death! How many pulses throb warm with affection which, but for his skill had been silent and cold! And when misfortune shall come, and remove some object dear to your heart, and the decree of God render void the physician's skill murmur not at the Divine Will nor sink below the noble Socrates who when condemned by the judges to drink the hemlock, made an offering to Æsculapius in memory of the mercies received from the medical profession.

"Honor the physician with the honor due to him. Of the Most High cometh healing, and he shall receive honor of kings. The skill of a physician shall lift up his head, and in sight of the great he shall be in admiration. In thy sickness, order thine hands aright. Give the Lord a sweet savor, a memorial of fine flour, and make a fat offering; then give place to the physician, for the Lord hath created him, and thou hast need of him."

THE BILLS appropriating $100,000 each to the University of Pennsylvania, and the Jefferson Medical College, were passed in the Pennsylvania State Legislature. The appropriation asked for the former was $125,000, and the reduction was made by amendment of Mr. Douglass, who now claims that he has earned his session's salary.

Art. 2.—Notes on the Epidemiology of Ohio.

Including a short Study of the Topography. Area, Population, Geology: Hydrography, Altitude and Climatology of the various Counties in the State, together with an inquiry as to the local causes that seem to exert an influence on the different varieties of Zymotici. The Geographical distribution of the Zymotic Diseases of Ohio. Mortality Statistics 1850, 1860, 1870, as evidenced by the United States Census. Mortality Statistics of Cincinnati, Dayton and Toledo for the years 1872–3–4–5–6. Historical notes on the past epidemics of the State, etc, etc.,

By THOMAS C. MINOR, M. D., Cincinnati, Ohio.

"Whoever comes to a place of which he is not an inhabitant, should study its position regarding the direction of the winds and the rising of the sun. He should pay attention to its position, to the nature of its waters; he should inquire whether they be muddy, hard or soft, if they pass over high and stony places. He should regard the soil in order to know whether it be uncovered and arid, or covered and moist; if it be high and airy, sunken or dry. Whoever makes himself with all these things duly acquainted, will learn on arriving at a town he has not frequented, the nature both of its endemic diseases, and of the general affections that should there be present." Hippocrates—De Aëre Locis et Aquis—(adapted from Coxe's Translation.)

SECTION 1ST.

Historical. In a historical sketch of the State of Ohio, Colonel Charles Whittlesy, President of the "Western Reserve and Northern Ohio Historical Society," states, "it is not yet determined whether we have discovered the original or first people who occupied the soil of Ohio. It is however known that an ancient people inhabited Ohio in advance of the red man, who was found here 300 years since by the Spanish and French explorers. Five or six hundred years before the arrival of Columbus, the Northmen sailed from Norway, Iceland and Greenland, along the Atlantic coast as far South as Long Island. They found Indian tribes in New England, closely resembling those who lived upon the coast and the St. Lawrence, when the English and French came to possess those regions. These red men have no traditions of prior people; but there are over a large part of the Lake country, and of the Valley of the Mississippi, earth works, mounds, pyramids, ditches and forts, the works of a more ancient race, and a people far in advance of the Indians. If they were not civilized they were not barbarians. They were not mere hunters, but had fixed habitations, cultivated the soil, and possessed mechanical skill. We know them as the *Mound Builders*, because they erected over the mortal remains of their principal men and women—memorial mounds of earth or unhewn stone, of which hundreds remain to our day. In these burial mounds there are always portions of one or more human skeletons, generally partly consumed by fire, with ornaments of stone, bones, skulls, mica, and copper. The Indians did not occupy the ancient earth forts, nor did they construct such works. They were found to be as they are now—a hunter race, wholly averse to labor. Their abodes were in rock shelters, in caves, or in temporary sheds of bark and boughs, easily moved from place to place.

The Ohio Tribes. When Champlain, in 1609, came in contact with the northern Indians, the Eries, Erigos, or Errienons, occupied the South shore of Lake Erie. About 1650, the Iroquois fell upon them with such fury and in such force that the nation was annihilated. Those who escaped the slaughter were absorbed among the conquerors, according to their policy; and the country of the Erie was occupied by the Iroquois. In 1681 these ferocious warriors swept through Ohio and Indiana to the Illinois Country, where they attacked the tribes on the Mississippi. These tribes would have shared the fate of the Eries and Hurons, had not the French assisted in their defense. Until the year 1700, the Iroquois held the South shore of Lake Erie so firmly, that the French dared not trade or travel along that side of the Lake. Having driven the Hurons or Wyandots from Lake Huron, and murdered the Jesuit Missionaries who were among them, by modes of torture of which only savages are capable, the Iroquois permitted the residue of the Hurons to settle around the west end of Lake Erie. The Delawares or Leni Lenapes, whom they had subjugated on the Susquehanna, were assigned hunting grounds on the Muskingum. A Southern tribe, known as the Chouwanons or Shawnees, a troublesome people as neighbors, desired a place on the Ohio. They were permitted to occupy the Scioto country as tenants at will, having the Twigtwees, Mincamis or Miamis, on the west.

Extinguishment of the Indian Title in Ohio. The true basis of title to Indian territory, is the right of civilized men to the soil for purposes of cultivation, perfected by conquest. As against civilized nations, the English crown derived title to the territory between the Alleghany Mountains and the Mississippi by the treaty of Paris, in February, 1763.

Long before this she had granted to individuals or to the Colonies all the land from ocean to ocean; but the French had done better, and acquired *quasi* possession of the Lake country, the Ohio and the Upper Mississippi Valleys, not by treaty, but with the consent of the Indians. This was the principal cause of the old French War, commencing in 1754 with the capture of a Virginia detachment at the forks of the Ohio. The Iroquois confederacy had, as early as 1680 carried their wars westward through Ohio to the Illinois River, and claimed lands to the banks of the Mississippi. As early as 1684, and again in 1726, cessions or grants of land were made by them to the English; and these treaties and grants were regarded as a source of title. The numerous so called Treaties of Peace, for the delivery of prisoners, made with the western tribes, in which no cession of lands was inserted, were: one by

General Forbes, at Fort Duquesne (Fort Pitt,) in 1758; another by Colonel Bradstreet, at Erie, in August, 1764; and by Colonel Bouquet, at the mouth of Walhonding, in November, 1764; in May, 1765, at Johnson's, on the Mohawk, and at Philadelphia in the same year; in 1774, by Lord Dunmore, at Camp Charlotte, in Pickaway County. By the treaty at Maumee Rapids, in 1817, reservations were conveyed by the United States to all the tribes, with a view to induce them to cultivate the soil and cease to be hunters. These were from time to time purchased by the Government, the last of which was the Wyandot Reserve, of 12 miles square, around Upper Sandusky, in 1842, closing out all claims, and composing the Indian difficulties in Ohio. "The open wars had ceased in 1815, with the treaty of Ghent."

The history of the State from the time of its admission into the United States in the year 1802, is so familiar to our readers that farther particulars are unnecessary. The rapid increase of its population was such, that in less than ninety years from the date of its first settlement it became the third State, in point of population, in the Union. The following table, compiled from the returns of the "United States Census" show Ohio's growth during the period named:

PROGRESS OF POPULATION FROM 1810 TO 1870.

Census—Years.	Population.
1800	45,365.
1810	230,760.
1820	581,434.
1830	937,903.
1840	1,519,467.
1850	1,980,329.
1860	2,339,511.
1870	2,665,260.

The population at the present writing (1877), may be safely estimated at 3.000.000. The earlier settlements of the State were Marietta (1788), Chillicothe (1796), Gallipolis (1791), Cincinnati (1788). In the year 1798, the entire population of Ohio did not exceed 8000 persons. The *medical history* of the State only dates back to the year 1800. The earliest medical writers were Dr. Peachey Harrison, of the Scioto settlement, and Dr. S. P. Hildreth, of the Marietta settlement. At a later date, Dr. Daniel Drake, of Hamilton county; Dr. Thomas Carroll, of Belmont county; Dr. John Dawson, Greene county; Dr. S. V. Dorsey, of Miami county, were the only prominent writers on the epidemiology of the State. At a much later period quite a number of physicians, mostly country practitioners, wrote short papers on the prevalent diseases of various counties. Our study of the epidemiology of Ohio is based on an analysis of these papers.

Topography of Ohio.—Says Whittlesey: "Ohio is bounded on the north by Lake Erie and the State of Michigan, on the east by Pennsylvania and West Virginia, on the south by the Ohio River, which separates it from West Virginia and Kentucky, and on the west by Indiana. It is situated between 38° 25' and 42° north latitude, and 80° 30′ west longitude from Greenwich, or 3° 30' and 7° 50' west from Washington. Its greatest length from north to south, is about 210 miles, and the extreme width from east to west, 220 miles. *Area*—the superficial area has usually been estimated at 39,964 miles, or 25,576,960 acres. In the United States Census of 1870, the total number of acres of land in Ohio is given as 21,712,420 acres, of which 14,469,133 acres are improved, and of the balance 6,883,575 acres are in woodland."

Of the surface of the State Von Steinwehr states: "Ohio has no elevations that could be termed mountains, but is far from being a level plain. With the exception of the northwestern part it is a table-land, having a mean elevation above the sea of 1000 feet, inequalities of which are the result of the erosion or excavations of valleys and ravines by streams of water." We shall have occasion to speak of these valleys and the relation they bear to the distribution of malarial affections throughout the State, for at an early epoch in the history of Ohio, the Muskingum, Miami and Maumee valleys bore an unenviable reputation as regards healthfulness. The most elevated portion of the State's surface is a ridge running from the north east corner of the state in a southwesterly direction, crossing it from the Pennsylvania to the Indiana border. This ridge forms the water shed of Ohio; the streams draining the northern surface of the State flowing northward and emptying into Lake Erie, the waters from thence pursuing their course to Lake Ontario, finally becoming feeders of the St. Lawrence River and Atlantic Ocean. The streams south of this water-shed flow southwardly, or in a south-westerly direction, becoming affluents of the Ohio River, which in turn feeds the Mississippi River and the Gulf of Mexico. Eventually, in this way, all the surplus surface water drainage of the State is received by the Ocean bounding the eastern shore of our Continent. The altitude of this ridge above the sea-level is shown by the following table, arranged by Whittlesey:

Locality.	Elevation above the Ocean.
Lake County, Little Mountain.	1165 ft.
Geauga County, head of Cuyahoga River.	1192 ft.
Columbiana County, Hanoverton Summit.	1190 ft.
Columbiana County, Yellow Creek Hills.	1245 ft.
Coshocton County, near New Castle.	1315 ft.
Richmond County, South-east Corner.	1390 ft.
Knox County, North part.	1279 ft.
Highland County, near Hillsboro.	1125 ft.
Perry County, near Somerset.	1150 ft.
Logan County, head of Great Miami River.	1335 ft.
Darke County, near Greenville.	1045 ft.

Speaking of this ridge, Whittlesey remarks: "north of the ridge the surface is generally level, the inequalities of the surface being caused by the streams. The central part of the State, embracing that portion between it and the 40th degree of north latitude, is a nearly level plain about one-thousand feet above the level of the sea, with a slight inclination towards the south. The southern section of the State is hilly and uneven, the valleys cut out by the streams growing deeper and deeper, until they reach the great Valley of the Ohio, which is several hundred feet below the general level of the State. In the southern counties the surface is greatly diversified by the inequalities produced by the excavative power of the Ohio and its tributaries, exercised through very long periods of time. There are some prairies in the central and north-western sections, but the greater portion of the State was originally well covered with timber. Whittlesey gives the following table showing:

THE ELEVATION OF THE PASSES OR SUMMIT LEVELS BETWEEN THE HEAD WATERS OF THE RIVERS.

Locality.	Elevation above mean tide.
Trumbull County, north line,	908 ft.
Portage County, Ravenna,	1869 ft.
Summit County, near Akron,	958 ft.
Medina County, near Harrisville,	901 ft.
Wyandot County, Tyamockte Summit.	898 ft.
Hancock County, heads of Blanchard's Forks.	1053 ft.
Shelby County, Lorramie's Summit,	942 ft.

Prof. J. S. Newberry, in an article on the physical geography of Ohio (*vide*, Geological Survey of Ohio, vol. 1, p. 32, et. seq.), gives an elaborate description of the altitudes of the highest summits in the State. The following table is taken from Newberry's article on the subject:

HIGHEST SUMMITS IN OHIO.

Locality.	Above Sea.	Above River.	Above [Lake Erie.
Summit between Scioto and Miami, in Logan County,	1540 ft.	1108 ft.	975 ft.
Highest hills of Richland County,	1475 ft.	1043 ft.	910 ft.
Round Knob, Columbiana County,	1409 ft.	977 ft.	844 ft.
Mt. Tabor, Tuscarawas County,	1365 ft.	933 ft.	800 ft,
Stultz Mountain, Highland County,	1301 ft.	869 ft.	726 ft.
Long Lick Mountain,	1254 ft.	822 ft.	689 ft.

Hydrography. Natural Drainage of the State.—Von Stenwehr, in speaking of the rivers of the State remarks that: "the principal river is the Ohio, which sweeps along the southern boundary in a wide meandering course. Where it first touches the State it has a width of 360 yards; but increases to a width of 600 yards at Cincinnati. Its current is gentle, exceeding three miles an hour only during the stages of high water. It drains with its tributaries the larger portion of the State. The following are the most important: the Mahoning River, which traverses Portage, Trumbull and Mahoning counties, and joins the Ohio in Pennsylvania; the Muskingum, which is formed by the Walhonding and Tuscarawas Rivers, and is navigable from its mouth at Marietta to Dresden; the Scioto, which rises in Hardin county, flows southeast to Columbus, where it is joined by the Olentangy, or Whetstone river, and enters the Ohio at Portsmouth; The Little Miami River; and the Great Miami River, which rises in Hardin county; and flowing southwestwardly, passes Troy, Dayton and Hamilton: it is navigable for almost seventy-five miles. Lake Erie forms three-fourths of the northern boundary, and drains the portions of the State lying north of a line drawn from the northeast corner to the intersection of the 40th parallel with the western boundary. The chief rivers emptying into the Lake are the Maumee, Sandusky, Huron, Vermillion, Black, Rocky, Cuyahoga, Chagrin, Grand Ashtabula and Conneaut Rivers. The Maumee enters the State from Indiana and flows through the northwest part for about eighty miles. It is navigable from Toledo to Perrysburry (18 miles), but in high stages of water steamers ascend as far as Defiance, sixty miles above Toledo."

Artificial Drainage.—Several canals run through the State and assist in its surface drainage. According to Edward D. Mansfield, "*the Ohio and Erie canal* traverses the central part of the State, from Lake Erie, and Cleveland, up the Cuyahoga to Cuyahoga Falls, thence across to the Tuscarawas, down its valley to that of the Muskingum, with which it connects by the cross-cut before mentioned to Dresden. From this cross-cut it extends across the country to Columbus, thence down the Scioto to Portsmouth, on the Ohio. The main line from Cleveland to Portsmouth is three-hundred and ten miles. Including tributary canals and feeders, the Pennsylvania and Ohio canal, eighty-seven miles; Sandy and Beaver, sixty miles; Muskingum Improvement, ninety-nine; Walhonding side cut, twenty-three; Hocking valley, fifty; Columbus feeder, eleven—it finally attained the length of 640 miles.

The Wabash and Erie Canal follows the valley of the Maumee about eighty miles in this State, up to Fort Wayne, in Indiana. The Miami Canal branches from the Wabash and Erie, thirteen miles above Defiance, and runs up the valley of the Auglaize River. In crossing the high land, or water shed, it is supplied with water from an artificial reservoir situated partly in Auglaize and partly in Mercer county. The canal then passes down into the Miami Valley, and through Piqua, Troy, and Dayton to Hamilton. From here it extends across to Cincinnati."

As all these canals have been constructed at the lowest possible level, they have been the means of draining immense surfaces of contiguous swampy land. The slack water improvements on various small streams, adjacent to these canals; the system of locks and dams, by which the former stagnant and alluvial bottoms of rivers and creeks have been converted into broad sheets of living water, have all contributed greatly to the decrease of that malaria which was once the bane of the low land counties of our State. Physicians living in the valleys of Ohio, through which these canals run, should impress on the minds of the inhaditants the necessity of keeping a close watch on the canal interests of the State. There is reason to fear that the numerous competing lines of railroads will at some time, in the not far off future, damage the canal interests to such an extent as to lead to their abandonment as a means of transportation. Should such a thing occur, unscrupulous parties will always be ready to buy in and drain the large tracts of land covered by reservoirs, basins, and canal beds. With their drainage thus cut off the people of the lowland counties of Ohio, may prepare for the reappearance of those malignant remittent and epidemic intermittent fevers which once devastated the most fertile portions of the State. It may be safely asserted that the canals of a country are of more real value than its turnpikes, and the better drained a county is, the better will be the health of its population and the more productive its soil. The canals of Ohio are *Public Works*, and should be maintained as such, even if never used as a means of travel and transportation. The canals of a State are its sewers for surface drainage, so to speak, and any attempt looking towards their abolishment should be promptly met and repulsed.

Geology.—From the geological description of J. S. Newberry (State Geologist) the following abstract is taken. "The rocks which underlie our State all belong to three of the great groups which geologists have termed "systems," *i. e.*, the Silurian, Devonian, and Carboniferous, beginning with the lowest of the series.

THE SILURIAN SYSTEM.

No. 1. *The Cincinnati Group.*—This is the name we now give to the Blue limestone series of Cincinnati. These are the oldest rocks which come to the surface in the State, and are the equivalents of the Hudson River and Utica shales of New York, with some representation, at the base, of the Trenton limestone. Below the lowest stratum exposed within our territory, lie still other portions of this great limestone mass, which probably represent the Chazy, Black River, and Birds eye limestones of the New York geologist. These lower limestones crop out on the Kentucky river at Frankfort. Underneath the limestones that have been mentioned, there are found in New York, first, the Calciferous Sandrock, then the Potsdam sandstone, which generally forms the base of the Silurian system. Below this, locally, the St. John's group of the Silurian, then the Huronian and Laurentian systems—the oldest known rocks. In the state house well at Columbus, which was bored to the depth of 2,775 feet, the Calciferous sandrock was passed through, and the Potsdam sandstone deeply penetrated.

The Cincinnati group has a thickness of from 800 to 1000 feet. It occupies a triangular area within our State, of which the apex is at Piqua, in Miami county, one side crossing the Ohio in Adams, the other the Indiana line in Preble.

No. 2. *Medina and Clinton Groups.*—Resting on the blue limestone, in various localities we find a sheet of red and mottled clay having a maximum thickness of perhaps twenty feet. This holds the position, and is undoubtedly the western prolongation of the Medina sandstone of New York. The Clinton group is represented in Ohio by a thin sheet of limestone, rarely more than twenty feet in thickness, generally having a pinkish tint, and a coarse granular texture from the great number of crinoidal stems which it contains. In Adams and Clinton counties, the Clinton group contains some of the peculiar granular fossil iron-ore which is so characteristic of this formation all along its line of outcrop, from Wisconsin around through New York and Pennsylvania to East Tennessee and Alabama. In Highland and Adams counties, Prof. Orton has discovered that the lower portion of the Clintonin is a conglomerate, formed of rounded pebbles and fossils of the underlying blue limestone. This shows that before the deposition of the Clinton, the Cincinnati group had consolidated to rock, and that portion of it had been raised above the sea level, and formed shore cliffs, the old fragments of which helped to make up the next succeeding deposit. From this fact we learn that the Cincinnati and Nashville ridge was first elevated between upper and lower Silurian ages. The upper Silurian strata are deposited unconformably on its sides, and probably never covered its higher portions.

No. 3. The Niagara Group.—On the Clinton rests the Niagara, which takes its name from the Niagara limestone, the most conspicuous element in the formation, and that over which the water pours at the Falls of Niagara. In Ohio, this formation attains a maximum thickness of about two-hundred feet, composed of the following strata, viz.:

Hillsboro Sandstone,	30 ft.
Guelph, or Cedarville Limestone,	20 ft.
Springfield, or West Union Limestone,	90 ft.
Niagara Shales,	60 ft.
Dayton Limestone,	5 ft.

The Niagara group consists mostly of yellow magnesian limestones.

No. 4. The Salina and Water Lime Group.—Of these the Salina is lowest, and takes its name from the salt which, in New York, is a conspicuous ingredient of the formation. In Ohio, the Salina is found only on the Islands in Lake Erie, and over a limited area of the adjoining mainland. Here, as in New York, it contains gypsum, and the plaster-beds of Sandusky Bay lie in this formation. It consists, for the most part, of bluish, shaley limestone and gypsum, in which no fossils have been found. The water lime group, which takes its name from the hydraulic limestone, of which it is largely composed in New York, consists mainly of gray or bluish limestones, which contain from 35 to 45 per cent. of magnesia, and attain a thickness of about 150 feet. The water-lime composes all the islands in Lake Erie belonging to the United States, except Kelleys Island, which is Corniferous limestone.

DEVONIAN SYSTEM.

No. 5. *Oriskany Sandstone.*—Upon the water-lime, sometimes directly, sometimes separated by a few feet of limestone, rests a thin sheet, never more than twenty feet thick, of sandstone. This holds the place of the Oriskany sandstone of New York, and probably represents that formation. In West Virginia, the Oriskany forms a massive and important group of rocks, but like other mechanical sediments, it rapidly thins out westward, and in our State, is the least important member of the geological series.

No. 6. *The Corniferous Limestone.*—Like the water lime and Niagara, the Corniferous formation is, in Ohio, a highly magnesian limestone, often a dolomite. The Corniferous limestone forms two lines of outcrop, one east the other west of the anticlinal axis; also, an island, twenty-five miles in length, near Bellefontaine. In Marion and Delaware counties, the lower layers of the Corniferous are composed of rolling fragments of the underlying water lime, showing a break between the upper Silurian and Devonian, similar to that already noticed between the lower and upper Silurian.

No. 7. *The Hamilton Group.*—The Hamilton formation, so important in New York, consists, in Ohio, of a thin sheet of marl and marly limestone, never more than thirty feet in thickness, resting on the Corniferous.

No. 8. *Huron Shale.*—This name is used to designate the great mass of black, bituminous shale, called by the older geologists the black slate. The formation is about 350 feet in thickness, and its outcrop forms a broad belt running from the lake, through the centre of the State of Ohio. It also underlies several counties in the northwestern corner. Though not entirely homogeneous, the Huron shale is generally black, and contains about ten per cent. of combustible matter. This carbonaceous mass, slowly decomposing, as all organic material will, gives rise to gas and petroleum which form such constant associates in the springs which flow from it.

No. 9. *The Erie Shales.*—These shales are the western prolongation of the Chemung and upper parts of the Portage rocks of New York. They form the Lake shore from the mouth of the Vermillion River to the Pennsylvania line—like all other strata composed of mechanical materials, sand, clay, etc., these shales thin out westward; so that, while having a thickness of so many hundred feet on our eastern border, they cease to be recognized in the central portion of the State of Ohio.

CARBONIFEROUS SYSTEM.

No. 10. *The Waverly Group.*—This is the "Waverly sandstone series." It consists of a series of shales and sandstones, from 350 to over 600 feet in thickness, of which the outcrop forms a broad belt extending from the Pennsylvania line near the Lake shore, around to the Ohio at the mouth of the Scioto. The age of the Waverly has been definitely settled by the present geological board, and there is no longer room for doubt that this is a portion of the Carboniferous system, and an equivalent of the "Vespertine" of Rogers, in Pennsylvania, and of the "sub-carboniferous sandstones" of Owen's in Kentucky.

No. 11. *The Sub-carboniferous Limestone.*—This is another of the several new elements which the present geological survey has contributed to the geological column in Ohio. It is the thin edge of the great Carboniferous limestone of Kentucky, discovered by Prof. Andrews to extend much further north than was formerly supposed. It represents only the upper or Chester portion of the Carboniferous limestone series.

No. 12. *The Carboniferous Conglomerate.*—This is the sheet of sandstone and pebble rock, known in the Old World as the mill-stone grit, and which there, as here, underlies so much of the coal measures. In the northern part of the State it has a maximum thickness of one-hundred and twenty feet. Further south, it is much thinner, and frequently wanting. It consists of coarse sandstone, with strata, many feet in thickness, of conglomerate, in which the pebbles are generally quartz. In several localities, many of the pebbles of the conglomerate are balls of chert (flint), and contain fossils, apparently derived from the Sub-carboniferous limestone, which seems to have once occupied a large area.

No. 13. *Coal Measures.*—By this term is designated the group of rocks, sandstones, shales, limestones, fire clays and iron ores, with which the beds of coal are inter-stratified. In the coal seams we find abundant proof that coal has been formed from vegetable matter in the places where it lies, precisely as peat is accumulating in the peat-bogs of the present day. The fire clays found beneath the coal seams are underclays, such as now occur in many of our marshes. The sandstones and shales indicate submergence of the coal swamps, where, according to the rapidity of motion of the flowing waters, coarser or finer materials were deposited on the beds of carbonaceous matter. The limestones which occur in the coal measures mark intervals of more complete submergence when, from the sea water, calcareous mud was deposited, derived from the hard parts of aquatic animals, principally mollusks. That portion of the great Alleghany coal-field which lies within our territory occupies nearly one-third of the State, or from 10,000 to 12,000 square miles—as in this area all the rocks dip towards the east, the coal measures are thickest on our eastern border. There they reach, in places, a thickness of over 1200 feet, and include ten or twelve workable seams of coal."

In speaking of the special geology of the different counties of the State, we shall frequently have occasion to refer to these different groups only by name; the reader will bear this fact in mind and, if desiring fuller particulars, should turn back and refer to the abstracts from Newberry, just quoted.

CLIMATOLOGY OF OHIO.

Prof. Newberry, and Lorin Blodget, Esq., the latter the leading Climatologist of the United States, have both written briefly of the climate of Ohio. The studies of these gentlemen have been based upon the meteorological observations made at only a few points in the State. Blodget, in his tables (see Topographical Atlas of Ohio p. 34,) gives the range of temperature observed at some thirty-two stations. Newberry, in his tables (see Geological Reports of Ohio, v. 1, p. 22), gives only the results obtained from the analysis of ten stations. Within the past year the Smithsonian Institute published a superb work on the "distribution, and variations of the atmospheric temperature in the United States." The tables contained in this elaborate work were compiled by Charles A. Schott, assistant United States coast survey. Schott gives tables, complete and incomplete, of one-hundred and fifteen stations in Ohio. From the tables of Schott and Blodget, the writer has compiled tables giving the range of temperature at sixty-six different points in the State. Only those stations were chosen whose records were complete and had extended over a series of years; the observations made at the omitted stations were either incomplete or needed correction. The writer has added to these tables a statement of the altitude of the different stations, together with the counties in which the observations were made. The data regarding the altitudes of the various stations, was drawn from a careful study of Toner's "Dictionary of Altitude," "Observations of the State Geological Corps," railroad and canal surveys, etc. The writer has reason to believe that the subjoined tables are the most complete of any yet published, including as they do observations of stations not contained in Schott's tables, but embodying all portions of both Blodget's and Schott's compilations which seemed to stand the test of a critical analysis. It was deemed by the writer unnecessary, for instance, to give the observations of more than one station for the city of Cincinnati. Schott's tables contain the reports of six different stations in that city, which vary widely in their statements regarding the mean annual and quarterly temperature. To illustrate, the mean annual temperature at these different Cincinnati stations ranges from 53.37° to 55.85°. The statement of a single station, in the writer's judgment deemed most reliable, was therefore taken. This station was Woodward College, where a series of most complete observations extending from 1819 to 1870, a period of more than fifty-six years, were made. The observations at Woodward College, show that the mean annual temperature of Cincinnati is 54.72°, a mean, which differed so slightly between the highest and lowest estimates given by the several observers, as to be judged the fairest. The observation made at some stations in the State were wholly omitted, for the reason that the estimates were either too high or too low. For instance, Chillicothe station, where the estimate for a single year (1819), shows a mean annual temperature of 58.75°; a temperature far higher than that of the most southernly and warmest portion of the State. One station, where the temperature is estimated too high, was added, that of Rockport, Cuyahoga county, with an annual mean of 52.49°. for the reason that it is claimed, no doubt justly in some instances, that the towns on the lake shore have a higher mean winter temperature than the towns lying farther to the southern and more interior portions of the State.

The great masses of fresh water lying to the north of Ohio are said to be equalizers of the temperature, warming the air of the Lake shores in winter, cooling it in summer. Notwithstanding all this the temperature of Rockport is deemed much too high. On the other hand, stations in the more central portion of Ohio have been omitted on account of too low temperature; for instance, St. Clairsville, Belmont county, where the mean annual temperature is estimated as low as 47.27°; a temperature lower than at almost any given point in the Western Reserve, and most northerly portion of the State. The close contiguity of the mountainous portion of Pennsylvania may explain in part, this low temperature evidenced by the Belmont county report, nevertheless the estimate is deemed too low; it is but fair however, to call the attention of persons, making climatology a special study, to an interesting point, not heretofore, as far as the writer is aware, mentioned by writers on this subject. Extending across central Ohio, running from east to west, are three meteorological stations, having very low mean annual temperatures for the latitude in which they are situated, *i. e.*:

St. Clairsville, Belmont County,	47.29°
Granville, Licking County,	46.58°
Sidney, Shelby County,	48.34°

These stations are situated almost equi-distant in eastern, western and central Ohio, and almost in the same latitude. This being the case, either these stations give too low an estimate, or the isothermal tracings of Schott and Blodget are at fault. These stations with a mean yearly temperature ranging from 46° to 48°, lie between the isothermal tracings of 51° and 52° of Blodget's chart for Ohio. As before stated the writer is of the opinion that the estimates made at the stations named are too low, and for the present, at least, shall judge Blodget's table to be correct. Other reasons might be given why certain stations have been omitted, but it is hardly worth the time to do so, at least in an article which is not taken up largely with the especial subject of Climatology. In selecting his stations, the writer has not forgotten the fact that the temperature of a place is greatly influenced by its surrounding. That altitude lowers temperature; that rocky soils, where there is but little tendency to absorb moisture, elevate temperature; that the alluvial deposit of marshy lands, and the contiguity of the forest lands to a place, depress temperature by favorizing evaporation and cooling the air; all these things have been taken into consideration in the selection of the mass of material from which our tables have been compiled, and every exertion has been made to render the same as reliable as possible. It is not our intention to enter into an elaborate description of the Climatology of the State, if the reader desires to study the subject more fully, we refer him to the papers of Blodget and Newberry. So far as a medical writer is concerned, I have to deal only with the seeming effects of climate and temperature on disease, a subject more fully discussed in a future section of this article. It was however necessary to compile the annexed tables, in order to show from what data certain medical conclusions were drawn. A glance at table first shows that the mean annual temperature of the State ranges from 47° to 54° Fahr. The lowest mean annual temperature is observable in the Western Reserve, at Cuyahoga, Ashtabula, Portage, Lake and Geauga counties; in eastern Ohio on the Pennsylvania border, as in Columbiana county; in the elevated counties of Ohio, as in Logan county. In the counties lying in the valleys of Ohio the temperature for the year is higher. The highest mean annual temperature is observed in the counties bordering on the Ohio river, as for instance Hamilton, Brown and Scioto, in which, the temperature touches 54° Fahr. Northeastern Ohio has then the lowest temperature for the year; southwestern Ohio the highest.

Table second, shows that the mean spring temperature ranges from 43°, in northeastern Ohio, to 54° in southwestern Ohio. Table third, giving the mean summer temperature, shows a range of from 65° to 75°. The highest temperature is in Hamilton county, southwestern Ohio; while the lowest is in the northeastern counties bordering on the lake. The influence of altitude in depressing the temperature is observable in the more elevated counties of the State; if they be compared with closely adjacent valley counties. The valley counties at this season of the year, show a range of temperature from two to three degrees higher than the more elevated counties. Table third, shows that the autumn temperature ranges from 48° to 56°. North-eastern and eastern counties showing the lowest temperature; southern, western, and south-western counties the highest. Table fifth, shows that northern and central Ohio have the lowest mean winter temperatures. The mercury rises higher as we approach the Ohio River. The winter temperature ranges from 26° to 35°. Blodget remarks: "the climate of

Ohio, though originally liable to malaria in many districts on its first settlement, in consequence of the high summer heat and profuse vegetation, has become almost entirely healthy in this respect, and generally as favorable in its sanitary characteristics, as any other State of its latitude. *It has less injurious extremes of heat and cold than any other State in or near the same latitude, and it suffers less from the extreme dry and wet seasons which affect all adjoining States.*"

It was originally the writers intention to have compiled tables showing the variations of rainfall in the different portions of the State, but a study of the rain charts of Blodget and Schott, was convincing proof that such labor had already been completely done; thus rendering such tables superfluous. The estimates of rainfall, in the different counties of Ohio, given in a succeeding section, are taken from a study of the beautiful charts of these observers. In the meantime, it may be briefly stated that the greatest annual fall of rain in the State occurs in south-western Ohio *i. e.*: 46 inches, and the least in north-eastern Ohio, 32 inches. The fall of rain diminishes therefore, from southwest to northeast, and the spring and summer months show the greatest fall of any seasons.

TABLE I.

SHOWING THE ALTITUDE AND MEAN ANNUAL TEMPERATURE OF VARIOUS TOWNS IN OHIO.

County.	Town.	Elevation of Station.	Mean An. Tem.
		FEET.	*DEGREES.*
Cuyahoga.	East Cleveland.	683	47.06
Ashtabula.	Saybrook.	650	47.89
Portage.	Hiram.	1290	47.93
Ashtabula.	Austinburg.	816	47.96
Lake.	Madison.	620	47.98
Geauga.	Welchfield.	1205	48.17
Guernsey.	New Birmingham.	——	48.23
Shelby.	Sidney.	985	48.34
Marion.	Marion.	1077	48.40
Lake.	Painesville.	670	48.40
Huron.	Norwalk.	620	48.53
Portage.	Edinburg.	520	48.58
Portage.	Windham.	——	48.64
Columbiana.	East Fairfield.	1152	48.69
Medina.	Montville.	1255	48.79
Cuyahoga.	Cleveland.	643	48.99
Guernsey.	Milnersville.	——	49.00
Lorain.	Oberlin.	800	49.05
Medina.	Seville.	1075	49.08
Summit.	Hudson.	1137	49.09
Licking.	Newark.	825	49.09

County.	Town.	Elevation of Station.	Mean an. Tem.
		FEET.	*DEGREES.*
Portage.	Freedom.	1100	49.15
Lucas.	Toledo.	604	49.20
Erie.	Margaretta.	850	49.39
Ashland.	Savannah.	1098	49.55
Pickaway.	Tarlton.	——	49.56
Erie.	Kelley's Island.	587	49.64
Knox.	Gambier.	1000	49.72
Huron.	Ripley.	965	49.79
Logan.	Bellefontaine.	1031	49.91
Huron.	North Fairfield.	660	50.02
Columbiana.	New Lisbon.	961	50.09
Ottawa.	North Bass Island.	587	50.20
Wayne.	Wooster.	872	50.21
Wood.	Bowling Green.	700	50.22
Champaign.	Urbana.	1015	50.26
Clermont.	Bethel.	555	50.37
Licking.	Croton.	——	50.42
Lorain.	Avon.	840	50.62
Highland.	Hillsboro.	1150	50.65
Franklin.	Westerville.	860	50.74
Montgomery.	Germantown.	720	50.81
Ottawa.	Salem.	950	51.14
Wood.	Perrysburg.	629	51.29
Butler.	Oxford.	950	51.35
Ross.	Kingston.	692	51.60
Coshocton.	Keene.	1000	51.67
Hardin.	Kenton.	1562	51.68
Jefferson.	Steubenville.	670	51.83
Miami.	Troy.	1103	51.95
Butler.	Jacksonburg.	1152	52.11
Athens.	Athens.	750	52.19
Washington.	Marietta.	670	52.24
Cuyahoga.	Rockport.	665	52.49
Hamilton.	College Hill.	800	52.53
Monroe.	Jackson.	540	52.60
Jackson.	Jackson.	700	52.85
Hamilton.	North Bend.	800	53.21
Warren.	Lebanon.	828	53.25
Franklin.	Columbus.	834	53.29
Gallia.	Gallipolis.	600	53.53
Muskingum.	Zanesville.	700	53.76
Hamilton.	Mt. Auburn.	891	54.34
Brown.	Ripley.	574	54.66
Hamilton.	Cincinnati.	540	54.72
Scioto.	Portsmouth.	537	54.98

TABLE II.

SHOWING THE RANGE OF SPRING TEMPERATURE IN OHIO.

County.	Town.	Mean Spring Tem. [*Degree.*	Connty.	Town.	Mean Spring Tem. [*Degree.*
Ashtabula.	Austinburg.	43.35	Cuyahoga.	East Cleveland.	45.45
Portage.	Edinburg.	43.58	Erie.	Kelley's Island.	45.46
Shelby.	Sidney.	43.87	Medina.	Seville.	45.72
Portage.	Hiram.	44.20	Geauga.	Welchfield.	45.74
Lake.	Madison.	45.06	Ashtabula.	Saybrook.	45.79

County.	Town.	Mean Spring Tem. Degrees.
Portage.	Windham.	45.89
Lake.	Paineville.	46.10
Huron.	Norwalk.	46.22
Cuyahoga.	Cleveland.	46.28
Erie.	Margaretta.	46.40
Huron.	Ripley.	46.40
Lorain.	Oberlin.	46.46
Medina.	Montville.	46.48
Hardin.	Kenton.	46.55
Guernsey.	Milnersville.	46.90
Lucas.	Toledo.	46.90
Columbiana.	East Fairfield.	46.93
Marion.	Marion.	46.94
Ottawa.	North Bass Island.	47.03
Huron.	North Fairfield.	47.03
Guernsey.	NewBirmingham.	47.11
Licking.	Newark.	47.75
Portage.	Freedom.	47.81
Wood.	Bowling Green.	47.84
Ashland.	Savannah.	47.94
Wayne.	Wooster.	47.97
Knox.	Gambier.	48.08
Columbiana.	New Lisbon.	48.13
Summit.	Hudson.	48.37
Pickaway.	Tarlton.	48.80
Logan.	Bellefontaine.	48.87
Licking.	Croton.	49.30
Champaign.	Urbana.	49.40
Clermont.	Bethel.	49.41
Wood.	Perrysburg.	49.43
Butler.	Jacksonburg.	49.53
Coshocton.	Keene.	49.86
Butler.	Oxford.	49.89
Franklin.	Westerville.	49.99
Highland.	Hillsboro.	50.01
Montgomery.	Germantown.	50.14
Ottawa.	Salem.	50.37
Ross.	Kingston.	50.76
Jefferson.	Steubenville.	50.99
Lorain.	Avon.	51.21
Cuyahoga.	Rockport.	51.23
Miami.	Troy.	51.69
Jackson.	Jackson.	51.75
Muskingum.	Zanesville.	51.90
Washington.	Marietta.	51.98
Hamilton.	Mt. Auburn.	52.03
Monroe.	Jackson.	52.05
Gallia.	Gallipolis.	52.41
Hamilton.	College Hill.	52.62
Athens.	Athens.	52.87
Hamilton.	North Bend.	52.97
Warren.	Lebanon.	53.30
Franklin.	Columbus.	53.56
Hamilton.	Cincinnati.	54.13
Scioto.	Portsmouth.	54.58
Brown.	Ripley.	54.64

TABLE III.

SHOWING THE RANGE OF SUMMER TEMPERATURE.

County.	Town.	Mean Sum. Tem. Degree.
Cuyahoga.	East Cleveland.	65.66
Pickaway.	Tarlton.	66.22
Medina.	Seville.	66.95
Lake.	Madison.	68.03
Portage.	Windham.	68.10
Medina.	Montville.	68.16
Ashtabula.	Saybrook.	68.41
Licking.	Newark.	68.45
Columbiana.	East Fairfield.	68.61
Huron.	Norwalk.	68.69
Summit.	Hudson.	68.79
Guernsey.	New Birmingham.	68.97
Geauga.	Welchfield.	69.11
Lorain.	Avon.	69.34
Portage.	Hiram.	69.44
Lake.	Painesville.	69.50
Cuyahoga.	Cleveland.	69.68
Ashtabula.	Austinburg.	69.77
Marion.	Marion.	69.79
Portage.	Edinburg.	69.93
Lucas.	Toledo.	70.20
Highland.	Hillsboro.	70.44
Portage.	Freedom.	70.51
Lorain.	Oberlin.	70.62
Knox.	Gambier.	70.66
Guernsey.	Milnersville.	70.70
Licking.	Croton.	70.75
Shelby.	Sidney.	70.84
Cuyahoga.	Rockport.	70.90
Franklin.	Westerville.	70.97
Ashland.	Savannah.	71.17
Clermont.	Bethel.	71.29
Washington.	Marietta.	71.29
Erie.	Kelley's Island.	71.33
Wood.	Bowling Green.	71.46
Huron.	Ripley.	71.59
Champaign.	Urbana.	71.60
Warren.	Lebanon.	71.70
Huron.	North Fairfield.	71.76
Ottawa.	North Bass Island.	71.81

County.	Town.	Mean Sum. Tem. [Degrees.	County.	Town.	Mean Sum. Tem. (Degrees.
Erie.	Margaretta.	71.82	Gallia.	Gallipolis.	73.05
Columbiana.	New Lisbon.	71.84	Wayne.	Wooster.	73.14
Ross.	Kingston.	71.85	Ottawa.	Salem.	73.16
Hamilton.	College Hill.	72.17	Butler.	Oxford.	73.70
Coshocton.	Keene.	72.25	Butler.	Jacksonburg.	73.71
Hamilton.	North Bend.	72.47	Wood.	Perrysburg.	73.89
Monroe.	Jackson.	72.48	Portsmouth.	Scioto.	74.13
Jefferson.	Steubenville.	72.60	Muskingum.	Zanesville.	74.20
Logan.	Bellefontaine.	72.61	Franklin.	Columbus.	74.44
Jackson.	Jackson.	72.73	Brown.	Ripley.	74.88
Montgomery.	Germantown.	72.85	Hamilton.	Cincinnati.	75.24
Athens.	Athens.	73.02	Hardin.	Kenton.	75.46
Miami.	Troy.	73.03	Hamilton.	Mt. Auburn.	75.60

TABLE IV.

SHOWING THE RANGE OF AUTUMNAL TEMPERATURE IN OHIO.

County.	Town.	Mean Autm. Tem. [Degrees.	County.	Town.	Mean Autm. Tem. [Degrees.
Guernsey.	New Birmingham.	48.69	Ottawa.	Salem.	51.67
Cuyahoga.	East Cleveland.	49.26	Cuyahoga.	Cleveland.	51.67
Geauga.	Welchfield.	49.55	Medina.	Seville.	51.83
Knox.	Hudson.	49.61	Logan.	Bellefontaine.	51.89
Guernsey.	Milnersville.	49.80	Wayne.	Wooster.	52.16
Portage.	Windham.	49.83	Miami.	Troy.	52.20
Lorain.	Avon.	49.99	Shelby.	Sidney.	52.23
Marion.	Marion.	50.00	Monroe.	Jackson.	52.27
Portage.	Freedom.	50.06	Jefferson.	Steubenville.	52.52
Portage.	Hiram.	50.11	Huron.	North Fairfield.	52.61
Portage.	Edinburg.	50.34	Butler.	Oxford.	52.81
Medina.	Montville.	50.50	Washington.	Marietta.	52.85
Lake.	Madison.	50.56	Hardin.	Kenton.	53.17
Licking.	Croton.	50.64	Butler.	Jacksonburg.	53.20
Licking.	Newark.	50.68	Ottawa.	North Bass Island.	53.21
Lake.	Painesville.	50.70	Erie.	Kelley's Island.	53.24
Clermont.	Bethel.	50.78	Huron.	Ripley.	53.29
Ashtabula.	Saybrook.	50.79	Athens.	Athens.	53.35
Columbiana.	East Fairfield.	50.81	Montgomery.	Germantown.	53.35
Lucas.	Toledo.	50.83	Ross.	Kingston.	53.42
Huron.	Norwalk.	50.87	Coshocton.	Keene.	53.58
Pickaway.	Tarlton.	50.90	Hamilton.	College Hill.	53.67
Franklin.	Columbus.	50.95	Brown.	Ripley.	53.88
Erie.	Margaretta.	51.05	Wood.	Perrysburg.	53.97
Ashtabula.	Austinburg.	51.12	Jackson.	Jackson.	54.03
Ashland.	Savannah.	51.28	Cuyahoga.	Rockport.	54.13
Knox.	Gambier.	51.29	Hamilton.	North Bend.	54.64
Franklin.	Westerville.	51.43	Hamilton.	Cincinnati.	55.21
Wood.	Bowling Green.	51.47	Gallia.	Gallipolis.	55.46
Columbiana.	New Lisbon.	51.47	Warren.	Lebanon.	55.70
Lorain.	Oberlin.	51.59	Muskingum.	Zanesville.	55.73
Champaign.	Urbana.	51.64	Scioto.	Portsmouth.	55.89
Highland.	Hillsboro.	51.64	Hamilton.	Mt. Auburn.	56.54

TABLE V.

SHOWING THE RANGE OF WINTER TEMPERATURE IN OHIO.

County.	Town.	Mean Winter Tem. [*Degrees.*
Logan.	Bellefontaine.	26.25
Shelby.	Sidney.	26.43
Ashtabula.	Saybrook.	26.56
Marion.	Marion.	26.87
Montgomery.	Germantown.	26.89
Portage.	Hiram.	27.15
Lake.	Painesville.	27.20
Lorain.	Oberlin.	27.52
Wayne.	Wooster.	27.57
Ashtabula.	Austinburg.	27.59
Ashland.	Savannah.	27.81
Wood.	Perrysburg.	27.87
Huron.	Ripley.	27.89
Guernsey.	New Birmingham.	28.16
Portage.	Freedom.	28.22
Geauga.	Welchfield.	28.26
Lake.	Madison.	28.28
Erie.	Margaretta.	28.28
Cuyahoga.	Cleveland.	28.32
Huron.	Norwalk.	28.33
Champaign.	Urbana.	28.38
Columbiana.	East Fairfield.	28.43
Erie.	Kelly's Island.	28.52
Guernsey.	Milnersville.	28.60
Ottawa.	North Bass Island.	28.74
Huron.	North Fairfield.	28.79
Knox.	Gambier.	28.86
Lucas.	Toledo.	28.88
Columbiana.	New Lisbon.	28.91
Butler.	Oxford.	29.00
Athens.	Athens.	29.32
Ottawa.	Salem.	29.36
Licking.	Newark.	29.46
Cuyahoga.	East Cleveland.	29.48
Summit.	Hudson.	29.59
Clermont.	Bethel.	29.98
Medina.	Montville.	30.02
Wood.	Bowling Green.	30.10
Ross.	Kingston.	30.37
Portage.	Edinburg.	30.47
Highland.	Hillsboro.	30.52
Franklin.	Westerville,	30.58
Portage.	Windham.	30.76
Miami.	Troy.	30.86
Licking.	Croton.	30.98
Coshocton.	Keene.	30.99
Jefferson.	Steubenville.	31.22
Hardin.	Kenton.	31.55
Hamilton.	College Hill.	31.65
Medina.	Seville.	31.81
Lorain.	Avon.	31.94
Butler.	Jacksonburg.	31.98
Warren.	Lebanon.	32.21
Pickaway.	Tarlton.	32.34
Hamilton.	North Bend.	32.77
Washington.	Marietta.	32.84
Jackson.	Jackson.	32.90
Hamilton.	Mt. Auburn.	33.18
Gallia.	Gallipolis.	33.19
Muskingum.	Zanesville.	33.21
Monroe.	Jackson.	33.60
Cuyahoga.	Rockport.	33.71
Franklin.	Columbus.	34.22
Hamilton.	Cincinnati.	34.28
Brown.	Ripley.	35.22
Scioto.	Portsmouth.	35.33

EAU DE COLOGNE AS AN ANÆSTHETIC.

At a recent meeting of the Nice Society of Medicine, Dr. Hugues presented some observations upon the anæsthetic influence of Eua de Cologne, which he had recently noticed. In one instance, that of a lady afflicted with tubercular consumption, and with whom injections of morphine and the use of chloral had failed to produce the desired repose, a friend suggested a trial of Eau De Cologne, which she had already used with success in similar circumstances on some twenty different occasions. An immediate experiment was made, by placing a handkerchief well moistened with cologne under the nostrils of the invalid, who, in the space of seven minutes, sank into a profound slumber. The same experiment was repeated in other cases, with excellent results.

Art. 3.—The Second Decade of Life. Annual Address before the Tri-State Medical Society.

BY PROF. W. H. BYFORD, OF CHICAGO, ILLS.

Ladies, Gentlemen and Confreres of the Tri-State Medical Society:

When I was honored with an invitation to appear before this society and this audience, in an address suitable to the professional and public ear, I could hardly see how it would be possible for me to accept it. It required only a day's reflection, however, to enable me to lay aside all considerations of sacrifice, and gladly embrace the opportunity of renewing the acquaintance of old time professional and citizen friends of this glorious old city and neighborhood.

Those of you who have taken the trouble to observe and remember my earlier years, can understand me when I say that Vincennes to me is more like home than any other place in all this wide world.

The place where in boyhood struggles with adversity, where my aspirations, hopes and yearnings were first experienced, where so many kind friends gave me that encouragement and aid so necessary to success. Where I found so many manly characters to imitate, and emulate, where a sainted woman took me to her home when I was sick, and by her untiring attentions—together with the skill of her generous husband—saved me from dying; could not be otherwise than sanctified by hallowed memories ever present in my mind. My visit to you however is not unattended by pain. Many of my very best friends in those to me trying times, and who I am sure would have given the warmest greetings, are dead: others, then in the vigor of youth and manhood are silvered with the frosts of many years, while still others, then children, have grown beyond my powers of recognition.

Vincennes as she was then, with her quaint old French houses, her green glades, her curious old mounds, always a source of wonder and awe; her broad rolling river, then her only highway to commerce, and above all her warmhearted and generous men and women will ever be to me a place of blessed memory. The subject I have chosen for my address is: the second decade of our life.

During the second ten years of our life many of our most important mental, moral and physical developments transpire indeed it will be no exaggeration to say that the events of this decade do more to form the character of most individuals of the human race than any other like number of years. It is difficult to institute a comparison as to the relative amount of mere knowledge attained by the child before he arrives at ten years of age; and that acquired by the youth from ten to twenty; but in every other respect the second ten years are clearly much more important to the welfare of the individual. At birth the mind is a complete blank; from the simple fact that up to this time all the avenues of information have been closed against external impressions. For sometime afterwards the organs of sense are imperfect, and they require not only development, but training, before they can be useful instruments for the apprehension of knowledge. Not one of the delicate structures of the eye, have attained completeness; and probably the only perception of which it is capable is that of light in its simplest sense. The ear is even less perfect in its structure, and is not capable of receiving any impression from sound for sometime after independent life is established. The infant has absolutely no sense of taste or smell so far as can be determined, and is probably almost incapable of experiencing pain.

The apparent manifestation of sensation in the infant arises from what physiologists call reflex sensibilities; *impressions* produced upon the body not recognised by the brain; and are consequently not *sensations*, these are conveyed by the nerves to the spinal chord, and from it reflected back to the part impressed or possibly some other. This reflexion may induce muscular action and consequent motion. The non-professional hearer may get a better idea of what I mean by one or two familiar illustrations. It is a common saying among juvenile observers in the country, that if you cut of the head of a snake the tail will not die until the sun goes down. After decapitation, if any part of the body is touched that part will move, and in some venomous species, the forward part of the trunk is thrown aound as if to strike. After the head of a criminal is severed from the body, the muscles of the arms and other parts may be made to contract by irritating them. This automatic or independent action of the spinal chord not only lasts after the brain is removed, and consequently all capacity for consciousness obliterated—but it exists before the brain assumes its control over the faculties.

Now when the child is born the organization of the brain is incomplete, while that of the spinal chord is nearly or quite perfect. When the air touches the surface of the face and chest, the impression is conveyed by the nerves terminating in the skin to a particular portion of the spinal chord, reflected to the muscles of respiration, and the child breathes and cries. So with the act of eating; if milk, water, or even the finger is placed in the mouth the acts of deglutition are performed. The child is not conscious of the presence of the food in its mouth, but the impression is carried to the spinal chord and reflected upon the muscles concerned. All the primitive acts in infancy are of this reflex nature, and should not even be dignified with the term instinct. The organs of sense are however rapidly developed and trained until they become capable, first of simple and afterwards of the more complex impressions, and the child is transferred in a few months from the condition of a very low order of animal to one possessing the attributes of humanity.

Now compare this picture with that of a bright intelligent boy ten years old, and a faint idea may be formed of what the child has learned during the first decade. At the end of this latter period he has acquired a great amount of knowledge, he may indeed have two or three languages upon his tongue, and not only know the meaning of their many thousands of words, but be able to pronounce them with all their peculiar flexions and intonations. He may have become acquainted with the manners, customs and proprieties of his domestic and social relations and learned much of the world. But notwithstanding his great progress in mental and physical development, he has hardly crossed the threshold of real life, and comparatively, he is further behind the mature man than he is before the new born infant. At the end of their first decade, children have not assumed their sexual peculiarities. Boys and girls mingle and romp without restraint; no sense of gallantry or deference on the part of boys, or coyness and blushing timidity are experienced by the girls. They are children in simplicity and frankness.

Soon however differences become manifest, each sex begins to assume a turn of mind, and shape of body that distinguish it for the entire future life. The age of puberty has arrived, and sexual differences become prominent in every appearance, thought, habit and act. The boy grows coarse, strong, self-reliant, ambitious and enterprising. He treats his female companion with less familiarity, is more deferential, considerate and gallant in his conduct toward her, and is sensible of the natural barrier that has arisen between them. He experiences a foretaste of the responsibilities of life, which urges him to emulation in acquiring knowledge; his habits become fixed, either for good or evil, and during the second decade he emerges from the condition of boyhood to that of the thoughtful and staid man. Contact with the world stimulates the strong to habits of industry, frugality, forethought and manliness, and overwhelms the weak in vice and ruin.

In the second ten years the physical and childish mien of the boy is lost; and the mature form and bearing of manhood make their appearance. The individual has grown to the stature, strength and independence of a full grown man. It is during this term of years that his sentiments are developed, his susceptibilities to religious influences and the sway of that all absorbing passion, love, show themselves.

The girl during the second ten years of life undergoes an equally marked change in her whole mental, physical and emotional being. From one possessing a childlike freedom of manner and thought, she becomes first the timid maiden, instinctively sensible of responsibilities imposed upon her by her sex; shunning the gaze of the stranger and fleeing from the approach of an intruder. After a time she matures into the fullness of womanhood, when an immense revolution has taken place in her whole organization. To her slender, angular form has succeeded a round and graceful contour, her step uncertain and hesitating, has become elastic and animated, and the vivacious expression of her eye, evinces the peculiar and loving ardor with which she is endowed. Changes no less remarkable have taken place in her system. The chest before narrow and compressed, has become expanded into the beautifully rounded bust characteristic of robust womanhood. In it the lungs act more freely, the heart has become more fully developed, and the streams of purified blood is sent with increasing energy to the remotest parts of the vascular system. The connective tissue has been increased in quantity and filled with adipose wealth, all the angles have been rounded into those graceful curves, that so eminently constitute that beauty of form which exclusively belongs to woman. The voice from the shrill treble of the child has become soft, passionate and melodious. Add to all this the radiant admixture of the hues of the lilly and the rose, with which her delicately moulded features are endowed, and we have a thing of beauty, never equalled by the pencil of a Raphael and above the most exhalted efforts of a Michael Angelo.

What vast responsibilities rest upon parents and educators who have charge of our youth during these momentous years!!! This is the plastic period of our lives, in it the character is formed; so that everything will depend upon correct management as to what manner of man or woman is to be the result. Whether the individual is to be mentally, morally and physically a success or a failure.

In the present state of things, during much of this important period the management of our children is largely entrusted to others. It is the time devoted to formal studies, the portion of life spent in obtaining our education.

It isnot my purpose to enter into a discussion of the subject of mental training; but I cannot forbear saying that the responsibilities of the teachers of the present age are greater than those of any other class except parents. They are expected to make wise men and women of all the children sent to them, and in accordance with the present system of education, they are expected to make them all wise in the same things. They must all be linguists, mathematicians, historians, philosophers, musicians and painters. Just as the same natural endowments to the same degree, or that we all possessed genius in every direction. Providence intended that we should have a variety of talents or gifts. And this variety of capacity is the source of our greatest enjoyment as well as success. If we all sang like Brignoli or Patti, we should not enjoy rare music as we now do; or if we could all count and measure the stars in the firmament like a Newton, the enjoyment of the sublime science of astronomy would dwindle into common-place work.

Whether the present system of mental training is the result of recent advanced thought upon the subject, or imitation of an effete system derived from a time entirely different from our own in character and requirements, is not for me to say. But I will venture to suggest that it might be improved.

My main object in bringing the subject I have chosen before you on this occasion, is that it affords me the opportunity of commenting briefly upon some of the deleterious influences operating upon the girls of this country during their second decade.

The human race is created in halves; each person is but a portion of one complete individual. Sex is the term used to indicate the semiperfect one, and a union of the two sexes in the marriage relation by which the two become one, results in a perfect human being.

Man and woman are both formed on one general plan and the physical, moral and mental differences which make the distinction between them is grafted upon the common stamen of our nature.

The peculiarities of the two sexes are not alike simple in character. This is true in every respect anatomically, physiologically and mentally, of the two man is the more simple, in physical structure; mental and moral organization. Some general tissues exist in women that have no place in the organization of the male sex, while the mental and moral qualities of women are also more complex than those of men. The greater deviations of human nature characterizing women, may be also expressed by saying that she is more highly organized than man. This excess of physical organization particularly endows her with more important functions, and enables her to assume far more important duties than are within the possession or capabilities of the male sex. The organization of man fits him for the outside relations of life alone, woman to some extent has the same capacities in this respect, while she also possesses those intended for the intimate and more important direct relations of the race. With the exception of physical strength, which comes to a great extent from circumstances, man organically is the inferior of the two sexes. He is engaged for the most part in the simple acts of accumulation, and is but slightly occupied with the perpetuation of the race; to woman is entrusted, and indeed upon her is imposed the all important duties of giving life to and rearing every individual in the whole mass of mankind.

This is the way I would estimate the importance of the two great divisions Providence has made, by imparting to us and maintaining our dual nature. Woman is therefore truly, as she is often ironically termed our better half.

While her superior and more complex organization endows her with more important capacities it also entails upon her greater suffering; and renders her of necessity more liable to disease.

From all this I think we may assume that the physical, moral and intellectual training of women has a most momentous bearing upon the great problems of the future race. It is of more importance for us to have healthy, cultivated, and good mothers, than to have fathers with the same qualifications.

Do the tendencies of the present practices of society incline toward that exalted cultivation necessary for the proper development of all the capabilities of this superior being? I will not try to answer this question as a whole, but I will point out some of the reasons why the possible standard of female perfection is not attained. I think they are to be found in the various methods of both physical and mental training which are so constantly practiced in the more elevated circles of American society.

Up to the commencement of the second decade the physical condition of the two sexes are very much alike, and usually their *habits* in many respects are similar. They are both allowed to romp and play and bloom in ruddy health, while their associations are simple, invigorating and unrestrained. From about this time there is as great a difference in the mode of training, as there is in their robustness and vigor. The boy is allowed the same freedom of outdoor exercise as before; and his development goes forward as a natural consequence. With the girl everything is changed, and the change is calculated to render her the frail suffering creature we find most of her sex to be, when they have arrived at mature age. Girls are no longer as strong, active and enduring as their brothers, and this is in a great degree because of the vicious differences in their mode of life.

The girl at this age is taught that all her childish sport and glee which have developed her muscles, stomach, heart, lungs, and brain, to an equal degree with those of her brother, must be restrained, and as she is approaching the period of womanhood she must deport herself in a lady-like manner.

If the discipline has not commenced before, it is now, by arraying her in fine clothing, that must not be rumpled and soiled by running and climbing; she is kept out of the streets, and confined to the house in idleness, or at least quiet restraint. She is not allowed the wholesome exercise of doing for herself the most common duties. If she does anything, she will perhaps learn to perform some fanciful thing in embroidery, drawing or fine sewing. Or she may take lessons in music, and practice three hours a day on the piano or harp. She may receive company, or do some other of the thousand little nothings that serve to keep her prim and proper from morning until night. When not thus engaged she is sent to school where she sits in crowded rooms, respiring air made impure by the breath of a number of little martyrs like herself, afraid to move with any freedom for fear of correction; sure, to receive the maternal injunction to come right home and not play in the streets.

If she goes to school she will generally have tasks to get at home that will break her back by sheer constraint, and make her little head ache from over brain-work. She may be allowed to walk staidly beside some older person than herself, to get a little fresh air for half an hour, but she must not run and play in the street. Under this restraint the muscles become weak, the heart irritable; the lungs are never expanded, the blood is impure, the stomach is incapable of digestion, and the child droops into invalidism just as naturally as if she had been poisoned.

This picture is not overdrawn, indeed for want of time I have not mentioned half the vitiating influences to which these children are subjected. At the age of fourteen or sixteen, they are sent to boarding schools for the purpose of finishing their education, and it is usually finished in the style it was begun.

It is a fact well known to observant physicians, that fifty per cent of all the students who remain for three or four years in these institutions are more or less injured by the severe discipline to which they are subjected. With few exceptions the routine of these establishments would impress upon us the idea of a treadmill. There is one continuous round of duties which must be performed by all alike, and under every variety of conditions, which are so exhaustive, that the vital energies of very many girls yield under their mischievous pressure. How often they come home from them in a state of temporary or even permanent invalidism, most medical men can testify. Besides the unreasonable amount of mental labor; these young women are subjected to physical restraint enough to deteriorate every function of the body.

This restraint shows itself in the rules of propriety adopted for their government.

There must be just so many hours for study—and they are too many—a certain other number of hours for sleep—and they are not enough, and again, a definite time for walking with a tutor, in which decorum is more of an item than exercise; there is a time for singing, a time for prayers, a time for church, a time for receiving, and many other things of a solemn character; but no time for unrestrained frolic and fun.

They have training mentally, morally and æsthetically and sometimes a measured kind of physical training, which amounts to restraint more than good wholesome exercise. If they have any kind of enjoyment, it is of a kind suitable for people whose blood has been cooled by advancing years, instead of that sort of rollicking and boisterous hilarity, suitable to arouse the circulation and develop the muscles, lungs, heart and brain.

The whole government of boarding schools for girls is intended to curb and subdue the flowing spirit, and destroy the joyous freedom so necessary to promote the health of body and mind.

We sometimes hear it said of municipal, state and national government, that they are governed too much; but the excessively governed institutions in our land are the boarding-schools for girls.

Girls are very much more susceptible to this kind of management than boys. We do not hear of them breaking through rules and forming secret societies for night foraging, hazing and fisticuffs with the girls of the towns in which they live, in spite of the vigilence of the professors. Nor do they engage in pranks and antics in defiance of the unwholesome discipline they are supposed to observe.

Now who is to blame for all this? Certainly not the proprietors of these boarding schools. Society demands, fashions and supports them. It would not tolerate anything less exacting in these establishments. In fact the more rigid the more popular they are.

Another most vitiating condition of circumstances in this decade is connected with dress. In all its details the toilet of the adolescent girl, is unnatural and unhealthful. Some parts of the body are clothed too much, others too little; and some I had like to have said not at all. They are corseted, corded, bustled, pulled-back, frilled, frizzled and padded entirely out of their natural shape, so that they present very few points of their natural form. If this disfigurement was all the harm done, it might pass as innocent masquerade, but when we consider that twenty-five per cent of the breathing room is cut off, that one fourth of the space intended by nature for the accomodation of the vital organs, is encroached upon by the unnatural pressure of the dress, that three-fourths of all the muscles are so cramped that they cannot act with their natural freedom; and when we observe the agony of attention, bestowed upon their attire to avoid unseemly derangement; we can appreciate some of the miseries of being a girl. In a slightly modified form the poor girl is harnessed in this elaborate apparatus during the whole of her youth.

If we enquire why this unnatural, unhealthy and mutilating costume? The only answer is, society demands it. Who is society? Everybody. So that everybody is bent upon the final extinction of the natural, wholesome, strong-limbed, stout-hearted being that once inhabited this land called—woman.

I am often asked, if there now exists such a creature as a healthy woman. As things are now going, if she is not now, she soon will become traditional; a thing of the past.

I have spoken disparagingly of the mode of educating girls. After all the inflictions coincident with, if not directly emenating from the system of training them; what is the result? The most useful things they learn, are the old-fashioned branches of knowledge expressed in the homely yet significant terms, "to read, write and cipher." In old times when a woman understood grammar, arithmetic and the art of composition, she was thought to possess all requisite information for her sphere. To these are now added the accomplishments. Now what are they? A little French, possibly Italian, a little music, painting, drawing, dancing, fancy work of various kinds and the like. Now it is well understood, that these are all forgotton by most women as soon as they are married. If this is not the whole curiculum of study, it is certainly a very large part of it.

Now does it pay to travel out of the avenues of health so far as to ruin the constitution of so many of the very best of the race, to gain these fleeting educational embellishments?

So far as I can see, there is but one way in which the subjects are at all remunerated; and that is the gaining of husbands.

It is a well-known fact that young men are carried away by their fancy. They must have these accomplishments, in the persons of their wives. The simple, pure-hearted, industrious and domestic girls do not shine brightly enough to captivate the young gentlemen of these times. There is no matrimonial demand for them.

These young gentlemen are a very fastidious race of beings, for while they will not even associate with the young women whose education partakes very largely of the useful, they complain that the companionable ones are so expensive a luxury that they cannot afford to marry them.

I am not prepared to say that this self-imposed celibacy is an unmixed evil, if it leads society to produce a medium between the two extremes. If it should induce those who have the training of young girls to teach them economy in dress, industry in their habits, and give them a solid instead of a superficial education, it will redound to the health, happiness and usefulness of women, and improve the physical soundness of future generations.

In this connection I cannot refrain from giving expression to a thought that must have forced itself upon every intelligent American observer, viz.: that men in this country work harder than those of any other nation, while the women of America do less useful labor, than is performed by her sex in any other land in the civilized world.

This is a state of things which brings about many of the glaring defects in our social system; and entails upon women the acknowledged physical frailty, pointed out by almost every intelligent foreign observer who expresses himself upon the subject.

It ought to be impressed upon all men and women that useful labor is the one absolutely necessary condition of health and happiness. Now what is the way out of this difficulty?

Reform is the cry of the moralist, divine, and politician. Can there not also, be reform in the training of the youth and especially of the young girls of this country?

Some of the difficulties in the way are, the vanities of society, the great desire for show, the disposition of each one of us to outshine everybody else, the desire to make our children ladies and gentlemen instead of good solid women and men. We desire and expect our children to begin life as a success. We do not prepare them to achieve that great object by earnest vigorous and manly effort, but we attempt and believe we have accomplished it for them; and what is worse, we teach and make them think so.

They are merely prepared to enjoy what has been done for them, and too often they are more successful in this than doing for themselves. They are taught to consume instead of produce.

If the experience of the past and observation of the present, that such young people are unsuccessful adults and indigent and suffering old people, is not a sufficient lesson, we can but expect matters to grow worse instead of better.

Another great difficulty is the utter ignorance of the laws of health under which the people labor. The fact that the violation of the laws of hygiene now becoming so well understood by the profession, necessarily leads to early decrepitude and the premature decay of the faculties, should be made known to the masses.

Much of the responsibility for the continuance of this state of deplorable ignorance will devolve upon the profession, if such information as will lead to reform, is not in the future publicly disseminated. Medical men who are more intimately connected with the masses must remove this great evil if it is ever done.

They are looked to and confided in as teachers in everything pertaining to the physical welfare of the children of their community.

Shall not we then, gentlemen of the profession, make the matters of rearing and training the coming generation as much a study as curing their diseases? These matters should be the subjects of our solicitude, thought and discussion as we value the welfare of our fellow men.

Much can be done by united, and individual effort to reform the unconscious abuses which have for generations been growing and gaining strength in all classes of society.

Our failure to make strong men and women of our debilitated and almost degenerate young people does not depend so much upon a lack of skill in their medical management, as in the want of a brave determined exposure of their damaging habits of living and training.

We are all familiar with the career of one of our Chicago men, who has aroused the heart of the world; not by the grandeur of his oratory or the magnetism of a majestic presence, but by his almost God-like courage in denouncing the vices of the present age, and an humble presentation of the old-fashioned and almost forgotten truths of the christianity of our forefathers.

Is there not in the medical profession a hygienic Moody, who has the courage to point out the universal misrule of society and by his voice and pen so earnestly and persistently lay bare the parental sins of the present age as to bring the people back to their senses, before the degeneration of their children involves American civilization in utter ruin?

Is there not some medical evangelist capable of presenting old-fashioned truths in the management of the household with such boldness and force, as will convince men against their gilded prejudices that the tendencies of the present times are toward physical decrepitude and decay?

Let us hope, pray and work for a reform in the training of the young, so that they may even exceed the robustness, vigor, and virtue, of that race of hardy people, who by their prowess won the praise of all men by the establishment of this glorious American republic.

Until this reform is brought about, the medical profession cannot claim that its mission is accomplished.

Art. 3.—Foreign Bodies in the Ear.

BY W. R. AMICK, M. D. CINCINNATI, O.

This is a subject that has been probably unduly magnified. We find that a great many methods were resorted to in order to remove such particles. Some of the methods were founded upon principle, whilst others were merely tricks resorted to in order to deceive the patient, at the same time to make him believe that the foreign body had actually been removed.

Celsus, who flourished just before the commencement of the Christian Era, was perhaps the first person who recommended vigorous injections of water in order to remove a foreign body from the ear. He also recommended that the patient should be laid upon a table, upon the side of the affected ear, when the operator would strike upon the table with a hammer and dislodge the foreign particle by the concussion.

Archigenes recommended a vigorous shaking—for instance, a child would be taken by the feet, and while the head was hanging down, give it a good shaking. For adults he placed them upon a table the same as Celsus did, and then the operator repeatedly opened and shut the leaf nearest the head with a slam.

Apollonius removed foreign bodies by means of ear-spoons, forceps, hooks, etc., which were wrapped with wool and dipped in turpentine.

Johannes Arcularius advised a peculiar way to remove foreign bodies from the ear. The head of a lizard was to be cut off and placed with its mouth to the external auditory canal and kept there for three hours. At the end of that time it was to be removed when the foreign body would be found in its mouth. It was also suggested that the surgeon should have a small pebble in his pocket, and then remove the dressing slowly and carefully, so that he could have an opportunity of placing the particle in the lizard's mouth. if the foreign body from the canal was not in it.

The presence of a foreign body in the external auditory canal is of itself, as a rule, not to be regarded as a dangerous affair. The danger is frequently brought about by the meddlesome interference of persons who know nothing about removing such particles. There was a notion prevalent in England, in Shakespeare's time, that poison poured into the ear was as dangerous as if taken into the stomach, and from this in some manner or other, has come the idea that a foreign body in the ear becomes at once a dangerous thing. (Roosa.)

The first thing to be done when a patient presents himself is, to find out whether or not there is a foreign body in the canal. This is best done by means of the mirror and speculum. If there is a foreign particle in the canal, the latter being normal, it can be detected by the above method of examination. After it has been seen, the next step is to remove it.

To remove a foreign body from the canal is not very difficult provided the particle is small and not in any way adherent to the surrounding parts. But when the particle is located at the internal portion of the canal, completely filling it at this point, it is then sometimes very hard to remove. One source of trouble is that the canal is not straight, so that it is difficult to get a fair view of the particle. Another reason is that the canal being small, instruments, unless made for that purpose, cut off the illumination. But the greatest trouble in these cases, is on account of the hour glass shape of the canal, being smaller in the center than at the extremities, so that in order to remove a particle that completely fills the internal portion of the canal, one of two things must take place, either the particle must be lessened in size or the canal made larger. As the central portion of the canal is osseous it is not probable that it would be made larger, so that the foreign particle must be operated upon. The greatest danger in trying to remove a foreign body at the internal portion of the canal is rupture of the membrana tympani, and the passing of the particle into the cavity of the tympanum.

The first instrument to be used in the majority of cases, is the aural syringe. By washing out the canal thoroughly the foreign particle is often dislodged and brought out also. If the syringe fails to remove it, then the operator should choose the instrument best adapted for the purpose, taking the condition of the particle and surrounding parts into consideration. The angular forceps are very good; earspoons, curettes, forceps, hooks, picks and probes, together with a variety of other instruments are used. In some cases it may be necessary to detach the auricle.

A CASE.

Minnie Oehr, æt. 3 yrs. While playing with some children one of them put a large white pea into her ear. She tried to remove it but pushed it farther into the canal. Her parents endeavored to take it out, but in their attempts pushed it down upon the membrana tympani.

We saw her three days later. The pea had swollen and with the mirror and speculum, it could be seen at the internal portion of the canal, completely filling it. As it was impossible to keep the child still, chloroform was administered. The syringe was used, but without success. Forceps were then resorted to, but it was impossible to grasp more than a small portion of it, and slight traction simply pulled off little pieces. We then tried to dislodge it with a probe, but were unsuccessful. What we wished to do then, was to divide the pea, and remove it piecemeal, But if we cut from without inward there would be danger of a rupture of the drumhead, and as it filled the canal it was impossible to get an ordinary knife so situated that we could cut from within outward. We happened to have one of Graefe's cystotomes at hand which answered an admirable purpose. The knife consists of a slendor shaft and short blade, the latter being at a right angle with the former. By a little careful manipulation the knife was inserted between the wall of the canal and the pea down to the membrana tympani. Then by giving it a quarter turn and pulling it outward the blade cut into the pea. We repeated this four or five times and succeeded in splitting the pea. Then with the syringe the posterior portion was washed out, but the anterior part being larger could not be removed in this manner. However it was easily removed with the forceps. The canal was then cleansed, and a weak solution of acetate of lead used. The child had a speedy recovery from the inflammation that had set in and its hearing in that ear was not in the least affected.

CASE OF CENTRAL RETINITIS.

Mrs. M—æt 24, has generally had good health and never had any ophthalmic trouble previous to the present attack. For the last two weeks she has been troubled with headache in the frontal region. The severest pain was in the region of the temple upon the right side. The sight began to fail in the right eye, but she thought that it was the result of cold and would pass off in a few days. The sight continued to fail in that eye, and at the end of nine days from the time she first noticed the trouble, she presented herself for treatment. This was on January 10th. The headache was rather severe and constant, with remissions. Tapping upon the head with the ends of the finger did not produce any increase of pain at one point more than another. Patient did not complain of any nausea. The appetite was poor. Never was troubled with alopecia, or sore throat, except as a result of cold. Never had any eruptive disease of the skin. Temperature, pulse and tongue normal. Slight constipation of the bowels.

An ocular examination of the eye revealed nothing definite. The lids were normal. No inflammation of the conjunctiva. The sclerotic was white and glistening. The cornea clear and perfectly transparent. The aqueous humor had its normal transparency. The anterior chamber was slightly shallower than that of the left eye. The iris was normal in color and responded fairly to light, but not so quickly nor to so great an extent as its fellow of the opposite side. The tension in the right eye was slightly increased. Moderate pressure did not produce any pain. Light was not painful. Never noticed any flashes of light before the eye. With the right eye she could not tell the largest letter of the test type at a distance of six feet. Vision in the central part of the field was much poorer than in the lateral portions. It seemed to her as if there was a mist or veil over the former, while in the latter there were small dark spots scattered promiscuously around. These spots were stationary. An examination with the ophthalmoscope revealed a tortuous and dilated condition of the veins on the inner side of the disk. Only two veins were tortuous, one running inwards and the other inwards and downwards. The one running directly inward was slightly elevated at a curve near the macula. The veins were all a little more dilated and the arteries somewhat more attenuated than those of the left eye. So far as color of the retina was concerned, no difference could be observed save in the region of the yellow spot and around the periphery of the disk in the right eye. The region of the macula in this eye was of a dark greenish blue. The interstices or spaces between the vessels just around the margin of the disk were filled with a greyish film, being more marked on the inner side. The disk was more indistinct than normal with an increase of redness upon the inner side, indicating a certain degree of inflammation. No extravasations of blood could be found, neither could the particles (?) causing the dark spots in the lateral fields of vision be seen. The left eye was normal.

The treatment was constitutional, consisting of tonics and alteratives. In the absence of acute inflammation, leeches were not used. As light appeared to have little or no effect upon the eye, she was not confined to a dark room. A shade was worn over the eye. Special attention was given to the habits. In the course of a week there was considerable change. The veins were not so much dilated nor tortuous, and the dark bluish green appearance in the region of the yellow spot was not near so marked, at the same time that central vision was much improved. The same treatment was continued and at the end of the fifteenth day she was able to read ordinary newspaper print at a distance of twenty-four inches — the headache was gone, and the dark spots and mist that obscured her vision had disappeared.

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Art. 5.—Diseases of the Rectum. Fissure of the Anus, or, Irritable Ulcer of the Rectum.

BY REUBEN A. VANCE, M. D., Gallipolis, Ohio.

President of the Ohio Valley Medical Association; Member of the Medical Society of the County of New York, etc., etc.

No. II.

This affection is of as much interest to the physician and physiologist as to the surgeon; it occupies a peculiar position in the history of surgery, and many a bitter war of words has been waged concerning its morbid anatomy and true pathological character. Referring those curious in such matters to Dr. Bodenhamer's work on "Anal Fissure," where they will find as exhaustive a discussion of the subject as the English language possesses, the present article will be limited to a consideration of practical points of more immediate interest to the practitioner.

In order that some of the phenomena attendant on this lesion may be correctly appreciated, certain anatomical points must be borne in mind. These pertain mainly to the disposition of those external longitudinal fibres of the rectum which pass under the lower margin of that organ, and are reflected on its inner surface; to the office of the loose cellular tissue which intervenes between the mucous and muscular coats at the lower fourth of the rectum; and to the manner in which these structures behave during the functional activity of the part. The muscular structure of the rectum consists of a layer of internal fibres which circle around the intestine, and a layer of external fibres which run in the direction of its length. As the lower end of the bowel is approached the circular fibres become thicker and stronger, and just above the external sphincter muscle, their volume is so great that they are distinguished from the surrounding parts by a special name—the internal sphincter. With the longitudinal fibres which are situated externally it is quite different—they do not all end at the same point. Many of them are blended with the levator ani, others perforate the external sphincter and are attached by means of fibrous prolongations to the integument about the anus, while some are connected with the membranous center of the perineum.

Careful examination however, will show that many of the longitudinal fibres which pass along the external surface of the rectum near its lower part, after investing the internal sphincter, curve under the ring formed by the inferior border of that structure and pass upward and inward to be inserted into the fibrous substratum of the mucous membrane of the lower fourth of that organ. In this situation the fibrous tissue by which the lining membrane is united to the subjacent muscular coat is loose, and the membrane, when the canal is empty, is thrown into a great number of irregular folds. It requires but a slight acquaintance with the physiology of the part in order to understand the phenomena of eversion of the mucous membrane, which occurs during the process of defecation. The longitudinal fibres which curve around the internal sphincter, ascend on the anterior surface of the inner muscular layer, and are attached to the sub-mucous tissues of the rectum, contract during defecation. The first effect of the tension so excited is to draw down and then protrude and evert the mucous membrane of the lower end of the alimentary canal. When the fecal matter is discharged the protruded parts are promptly retracted by the natural contractility of the adjacent structures, but more especially by the action of the levator muscles. Consequently, the mucous membrane of the lower part of the rectum during defecation, moves freely over the subjacent tissues; the part investing the internal and external sphincters is especially prone to change position during the functional activity of the organ ; and ocular inspection demonstrates the fact that these movements may be from side to side during dilatation of the sphincters, as well as in the line of the long axis of the intestine when the mucous membrane is first everted and then retracted with the commencement and conclusion of the physiological process of defecation. The great importance of these anatomical facts will become apparent, when the severe and almost unbearable character of the pain developed by movement of the bowels in patients suffering from fissure of the anus is compared with the slight and seemingly unimportant lesion of the mucous membrane to which it owes its origin.

A series of longitudinal folds, or columns, characterizes the mucous membrane of the lower part of the rectum. Just within the anal orifice where the compression exerted by the sphincters of the canal is greatest, these columns are most marked ; between the adjacent columns are sulci, the lower parts of which are brought together and enclosed by semi-lunar shaped folds of mucous membrane—above the internal sphincter these columns gradually fade away and merge into the ordinary flaccid coating of the surrounding parts. An erosion of the mucous membrane at any point between the muco-cutaneous line which marks the junction of the common integument and the lining membrane of the rectum, and the upper border of the internal sphincter, is almost invariably attended by the muscular spasm and excruciating pain which make up the clinical characters of the affection now under consideration, and which is indifferently styled fissure of the anus, or irritable ulcer of the rectum. The extent of the area in which a solution of continuity is prone to assume the special characters just noted, and the different anatomical structures located there, explain not only why observers attach different names to the lesion, but furnish reasons for the varying appearance of the fissure, or ulcer, in the peculiarities of the tissues in which it is located. Dismissing for the present any further reference to the structure of the part affected, a glance at the following clinical phenomena will furnish a brief outline of this affection in a mild and uncomplicated form. During the winter of 1867—8 my services were sought by a young medical student who at that time was taking a course of private instruction in Auscultation and Percussion under my guidance. He stated that about two weeks prior to our first conversation on the subject, he noticed that defecation was painful and that his bowels, usually very regular in their action, had been much confined of late—in fact, that he had suffered more or less from constipation ever since lectures commenced in the fall. The pain was sharp and decided; it was located at one point on the posterior wall of the rectum and seemed to be immediately within the anal orifice. In his description of the sufferings he had endured, he was explicit in stating that his attention was first drawn to the part by pain suddenly developed in a circumscribed locality during the act of defecation and that his motions were unusually irritating that day owing to the fact that his bowels had not moved during the preceding forty-eight hours. That evening he took a mercurial, following it next morning with a dose of an ounce of Rochelle salts.

The watery and profuse stool thus excited was not free from pain, but his suffering was much less than it had been the day before. His bowels did not again move for three days—when they did, he experienced pain in the same region as before but it was a pain far more severe in character. In addition he noticed that the conclusion of the act of defecation was not the signal for the cessation of pain, as had been the case on the two occasions when pain was developed by the evacuation of his bowels, but that an uneasy sensation which he compared to the pain of an irritable tooth persisted for at least half an hour afterwards. From this time until he consulted me, his bowels remained irregular; when they moved of their own volition, the passages were firm, and the pain thus excited lasted long after the completion of the act; when, as the result of medicine, the dejections were liquid and free, the same sort of pain was induced, but its development was different—instead of coming on suddenly and with great severity, as in the first instance, often there was nothing more than a mere sensation of uneasiness about the rectum, while the feces were being voided, and it was not until some time after defecation was concluded that the pain attained its greatest intensity. The appearance of the young gentleman strongly corroborated his statement that the pain he had endured during the preceding fortnight had impaired his general health, for the fresh rosy look he presented when I first met him but a month or two before, had in a great measure disappeared and his face now was sallow and wan, and his whole bearing that of one worn out by mental and bodily suffering. In the condition he then was it needed no argument to convince him of the necessity of a rectal examination, and accordingly an appointment was made for him to come to my room in Bellevue Hospital on the ensuing Sunday morning for that purpose, he to prepare himself by thoroughly emptying the lower bowel with an enema late Saturday night, At the appointed time he made his appearance. The movement provoked by the enema had induced a more than usually severe paroxysm, and the effects of the pain, combined with the apprehension he felt concerning the result of the examination to be made the following day, had greatly depressed his spirits and deprived him of all refreshing rest during the night. The sphincters were found so tightly contracted that the mucous lining of the bowel was utterly invisible, and no effort on the part of the patient relaxed them sufficiently to enable any of the internal tissues to protrude when forced bearing down movements were made. The attempt to separate the parts with the fingers and thus expose the mucous lining of the anal orifice proving fruitless, digital exploration was tried. The external sphincter felt to the finger as firm and tense as a tightly drawn cord; the pain caused by the pressure of the finger was so great that this method of investigation had to be abandoned. A teaspoonful of chloroform was then sprinkled on a handkerchief and the patient directed to inhale the vapor. In a very short time—only a moment or so--the anal sphincters relaxed, it became possible to evert the edges of the anus, and expose the lining membrane of the rectum. The structures on both sides of the anus and in front were healthy—the lower part of the rectal mucous membrane in these situations to the extent of from three-quarters of an inch to an inch above the anal margin was free from lesion of any kind. On the posterior wall of the rectum, at a point from a half to three-quarters of an inch above the muco-cutaneous line which marks the junction of the skin and the lining membrane of the bowels was located the cause of all the troubles from which the patient suffered —a lesion which, when the fingers of the observer were placed so as to cause the posterior wall of the rectum to project, without subjecting it to distension, presented the appearance of a simple fissure embedded in the loose folds of the mucous membrane adjacent, but which, when the cavity of the anus was distended, assumed the shape of an oval ulcer. A little gentle manipulation of the parts revealed the fact that it was in the power of the observer by varying the degree of force with which the anal orifice was distended, to make the lesion assume all the distinguishing characteristics of either a vertical, slit-like fissure, or an oval, almost circular ulcer. When the parts were relaxed and no more traction made on the adjacent tissues than was necessary to expose the fissure, the relation of the latter to surrounding structures could be readily determined. The lesion primarily had been located in a sulcus between two adjoining columns of the rectum; immediately beneath its lower extremity was one of the sinuses, with its internal investment of the semi-lunar flap of mucous membrane already described; the projecting edges and receding cavity of this slit-like lesion were, after all, simply accidental arrangements of flaccid structures compelled, by contraction of the sphincters, to assume that position in which they occupied the least space. In order that no unsuspected morbid condition should escape observation, but more especially, that no polypus should be overlooked—a complication of causes of this character that is liable to escape detection from the facility with which its free extremity glides along in front of the exploring finger—more chloroform was administered, the resistance of the sphincters was overcome by forcible dilatation and, by the aid of a Sim's speculum, a careful visual inspection was made of the whole lower part of the rectum. The fissure was found to penetrate the mucous membrane and sub-mucous tissues, when grasped between the fingers and compressed in different directions, it felt as if its edges were agglutinated to the muscular walls of the rectum. The edges were not thickened—on the contrary they felt soft, and the bottom of the fissure was red and not unhealthy in appearance—yet at this point, the loose lining of the anal canal was firmly cemented to the surrounding muscular structures. No trace of disease was perceptible in the little sinus at the lower and external part of the sulcus in which the fissure was located. In fact, with the exception of this apparently insignificant fissure which had caused the welding together of the mucous and muscular coats of the rectum at its circumference, all the tissues of this organ presented a natural and healthy appearance.

The history of this patient and the structural changes revealed by an examination of his rectum are typical of the early stages and milder forms of this disease. Coming under treatment, as he did, before secondary changes in the surrounding tissues had manifested themselves, and at a time when no complications had developed, his case is interesting in many respects. In view of these facts I have determined to make the few but essential points which this history furnishes, the outline on which my remarks relative to fissure of the anus shall be based.

In the first place it is interesting to observe the length of time which elapsed after pain or uneasiness in the anal orifice was noticed, before the peculiar pain characteristic of anal fissure came on. Careful inquiry in a number of patients who came under my observation very shortly after the disease developed itself, resulted negatively; either they had utterly neglected noticing, or the vague undefined idea which even very intelligent people entertain relative to the function of defecation rendered their statement of no value so far as the object of my inquiry was concerned. From a few, more definite information could be obtained. When the lesion was located in the sulci between the columns of the rectum, the pain that laterally grew so harrassing, developed soon after the first symptom of uneasiness at the anal outlet was felt. One or two cases presenting the small, deep, round ulcer characteristic of this disease when the sinus at the bottom of the sulcus was its site, were sure that they had a long period of trifling and vexatious pain in the fundament before the peculiar pain that subsequent experience led them to associate with anal fissure was noticed. In others suffering from the oval ulcer that forms when the mucous membrane over the upper portion of one of the columns is the site of the lesion, there was no uniformity in regard to the development of the characteristic pain, except when the date of the latter was coeval with the first appearance of spasm of the sphincters. One patient detailed a period of several months of uneasiness and often of positive suffering from pain deep in the anus, that came on when the bowels began to move, continued during the time they were being evacuated, and ceased when defecation was completed, which was brought to a sudden close by a sharp pain one morning at the water closet which was so severe as to cause anal spasm. After this attack, the peculiar pain of anal fissure was developed whenever the bowels moved. In others, the character of pain developed at first was maintained throughout the whole course of the lesion—in such, however, the pain was very severe from the first.

Cases in which the pain assumed the special features characteristic of anal fissure as soon as developed, were rare. The history of by far the greater proportion of cases of anal fissure, show that at first the pain was much milder than it finally became—that primarily, the symptoms were such as one would anticipate when the mucous membrane, or muco-cutaneous folds at or within the anal orifice had just been torn. Thus, the suddenly developed smarting and burning coming on during the act of defecation, complained of by the patient whose history has been detailed—a pain not at all out of proportion to the gravity of the lesion which excites it—is one of the most common phenomena of the disease. Equally characteristic of anal fissure is it for this original smarting and burning pain sooner or later, to lose those qualities, and assume others of an entirely different nature. Our patient complained more of a change in the duration, intensity and manner of development of the pain, than of a modification in its character. But sooner or later they all combine, and had it not been the good fortune of this young gentleman to have the disease checked early in its course, he would probably have suffered as severely as any of the other unfortunates similarly affected. As a general rule the pain and smarting which characterizes the disease, in its earliest stage, is succeeded by a burning, boring or lancinating pain to which an excrutiating aching and throbbing is added at a later period. Occasional paroxysms of spasmodic contraction of the levator ani and the sphincters, add greatly to the patient's suffering. This violent, lancinating, throbbing and aching pain, combined with excruciating suffering induced by the attendant spasm of the anal muscles, constitutes the "characteristic pain" of fissure of the anus.

The history just detailed presents the phenomena of anal fissure in their simplest form. It occasionally happens that patients afflicted with this disease, whose sufferings extend over years, complain simply of pain in the rectum with spasm of the anal muscles, and in whose cases the most careful and painstaking examination reveals nothing but an ulcer, or fissure, such as was found in the case of the medical student. Yet these cases are not common—the rule is, that as time passes, some complication develops. But it is to none of the complicating lesions that anal fissure, or irritable ulcer of the rectum owes its pathological individuality—the pain and spasm secondary to a lesion of the mucous membrane lining the terminal orifice of the large intestine constitute the essential clinical phenomena of the complaint, and whatever additional symptoms may be complained of are due to complicating, or intercurrent affections. This primary lesion of the mucous membrane may be situated at any point between the upper border of the internal sphincter, and the line at the outlet of the anus which marks the junction of the skin and lining membrane of the rectum. In exceptional cases it may attack either side, or the perineal wall of the rectum, but in the immense majority of instances the coccygeal aspect of the intestine is the site of the lesion. Its appearance varies with the part in which it is located. When the folds between the columns of the rectum are attacked, a fissure-like form is necessarily assumed from the fact that the pressure of the enveloping sphincter compels the sides of the lesion to approximate, if not come in direct contact with each other. If the observer dilates the part, the fissure will assume more or less of a circular form. The appearance of the bottom of the sore varies with its duration—in old and deep fissures the muscular coat becomes visible. Generally the walls are flexible, and the lesion superficial, prior to the advent of spasm in the anal muscles and the development of the characteristic pain of the affection; but afterwards the edges become thickened, the bottom looks gray and the circumference of the sore seems fastened to the subjacent tissues. When the sinuses at the base of the inter-columnar sulci are attacked, an examination, after the development of pain and spasm, will reveal a deep circular ulcer which appears to penetrate the lining membrane as if the part had been cut out with a punch. Above the sinuses and sulci at the point where the columns expand, a lesion of this character presents an oval outline. That peculiarity in the pathological anatomy of the structures in this region, which was noticed in the preceding paper, in virtue of which the further from the anal orifice an ulcer is located, the more it tends to assume a circular form, is especially noticeable in the class of cases now under consideration. The careful observer will also find his attention drawn to another fact which seems to be a corollary to the foregoing, and that is, that in the region designated as the site of anal fissures or irritable ulcers of the rectum, the higher the lesion is situated and the more nearly circular its form, the less intense is the spasm of the anal muscles and the less characteristic is the pain which defecation excites.

The state of the sphincters is an important element in the case. They were found firmly contracted in the patient whose history has been related, and any attempt to pass the outlet they guarded provoked violent pain. This rigid condition of the muscles comes on after the characteristic pain has been developed and appears to be a constant phenomenon, persisting without intermission from day to day and week to week, during the subsequent progress of the disease. The connection between the firmly contracted muscles investing the anal outlet and the lesion which occupies the lining membrane of that part, has been the source of many of the misconceptions and erroneous conclusions which can be traced in the history of the surgery of the rectum and anus. Without entering upon the questions in dispute it will suffice to say, that modern physiology finds a ready and satisfactory explanation, not only of the constant tonic contraction but of the occasional paroxysms of spasm of these muscles, in the varying degrees of irritation to which the afferent nerves that originate at the site of the ulcer, or fissure are subjected. The impression communicated to the peripheral distribution of the sensitive nerves is transmitted to the spinal centers where, in accordance with the primary laws of reflex action, a motor impulse is generated and the muscular tissue in the neighborhood of the source of irritation is caused to contract. The state of the lesion has an important influence on the character of the reaction. When the ulcer or fissure is recent, the secondary contraction is very slight; when inflammation has agglutinated the parts, the embedded nerve filaments become so irritable that the slightest contact suffices to induce a spasmodic contraction and bring on a paroxysm of the pain peculiar to anal fissure.

When a lesion of the lining membrane of the rectum in the area between the upper border of the internal sphincter and the margin of the integument has assumed the characters of an irritable ulcer—that is, provokes persistent contraction of the sphincters and excites the pain already described as characteristic of the affection, whenever the bowels move—the subsequent history of the disorder, is but one recital after another of paroxysms of pain so severe as to absorb the whole attention of the sufferer. As has already been stated, the first time the patient has spasm of the anal mucles, the pain generally assumes the characters that are peculiar to the complaint, and persistent contraction of the sphincters becomes a constant phenomenon. It then generally happens—as was the case with the medical student—that the sufferer endeavors to alleviate the pain accompanying defecation by using cathartics, but, unfortunately, little if any relief is experienced. For a time some alleviation may be noticed, but the rule is that the pain becomes more and more harrassing, after its first advent. Unless the patient is fortunate enough to secure good surgical treatment—and the great majority do absolutely nothing but resort to empirical remedies—the pain is either relieved by the employment of morphia, or the patient contracts the pernicious habit of eating but little solid food, and then permitting his bowels to go without evacuation for three, four, or even ten days. In either case, the subsequent course of the disease is much aggravated. In both, constipation of a peculiarly disagreeable kind is induced, and occasionally, mechanical means may have to be employed to empty the distended lower bowel. The pain may remain in abeyance at first, in these cases when defecation is thus postponed, but in a few weeks—that is, after one or two hardened passages have been experienced—the suffering is not only more intense than ever, but the local sore becomes so irritated that even the slightest discharge of wind, coughing, or even a sudden step, suffices to bring on a violent exacerbation. In others, who, at the cost of great agony, keep their bowels acting daily, the irritating character of the evacuated matters so affects the lesion at the anal orifice that pain is induced by other causes than defecation. These patients are then reduced to a most deplorable pass, and when they come under the observation of a physician it is generally with the fixed belief that they are suffering from cancerous disease of the bowel. The length of time a patient will remain in a condition in which the evacuation of the bowels will cause such agony as has been alluded to, is not the least peculiar feature of these cases—the duration of even the simple, uncomplicated form of the complaint such as has been described, varies with the age and sex of the patient, and the occurrence or non-occurrence of complicating or sympathetic affections. Judging from the patients who have come under my own observation, I should say that there seems no limit to the time patients will continue to endure the agony incident to simple fissure when, besides the contraction of the anal sphincters, there are no other phenomena than the lesion of the mucous membrane and the pain when the part is disturbed by defecation or otherwise. After a certain time they learn those articles of diet which make their evacuation most bland, and acquire those habits which give them least pain. Some men who now suffer from the disease, to my certain knowledge, have had it ten years; others who are now well, have told me of twelve and even fifteen years suffering. When the disease develops in those who are so situated in life as not to be dependent on their daily exertions for their livelihood, and in whom it has not advanced beyond the form described, it seems to cause a morbid fear lest, in endeavoring to cure it, they make their complaint worse ; so, year after year, they go on suffering until some intercurrent affection cuts short their life, or some change of fortune compels them to seek relief at the hand of the surgeon.

An attentive examination of the recorded observations of those who have devoted time to the study of diseases of the lower bowel and its terminal orifice, reveals the fact that anal fissure may occur at any period of life. Some observers have been led to believe—from the peculiar character of their personal experience—that certain periods of life, and certain occupations, exempt from this disease. Dr. Bushe, thought infants were never troubled with this complaint—other authorities have imagined that the life of a Western backwoodsman was such that the disease could not develop among that class of men; yet anal fissure is not a rare disease among very young children, and occasionally develops even in the infant, while the experience of Western surgeons is directly contrary to the view that one who lives the hardy life of a frontiersman is necessarily exempt from this complaint. Certain occupations predispose to it. Thus, those who pursue sedentary callings, and remain in doors the greater part of the time, are particularly prone to it. The process of the parturition occasionally causes it—for this reason, doubtless, it is so common in women. The habits of the female sex predispose to all forms of disease of the rectum, and when their proverbial carelessness in reference to the action of their bowels is borne in mind, the only wonder is that they are not more subject to this complaint than they are. Any calling which renders those following it irregular in their habits, so far as the proper attention to their bowels is concerned, may become a predisposing cause of this disease. It not infrequently happens that the first symptom of anal fissure is excited by the unusually free and energetic movements caused by an irritating cathartic. I have lately had my attention drawn to the frequency with which all forms of disease of the rectum occur among men who work on coal boats, are much of the time in the wet, and who, in other respects, are confined to the routine of a life on the river. Here want of that walking exercise which seems best calculated to preserve the healthy state of the bowels, induces constipation, to be in turn followed by the train of local evils which result from the constant use of purgatives. Another point relative to the causation of diseases of the rectum is exemplified by the history of cases of anal fissure—not only may any calling which tends to induce irregularity of the bowels act as a predisposing cause of these affections, but the habit of irritating the lining membrane of the alimentary canal and provoking excessive evacuations of the glandular secretions that empty into the intestines, is one of the most efficient methods of inducing diseases at their terminal orifice. The imperfectly elaborated fluids thus forced into the intestines act as a drastic cathartic, and are especially prone to provoke erosions of the mucous membrane at the anal outlet—fully as much so, as are masses of hardened feces, in constipation liable by mechanical violence, to tear the delicate structures at that point.

The fact that patients, suffering from anal fissure in its simple form, are not disposed to avail themselves of medical treatment, has already been alluded to, and that fact is one reason why physicians so seldom have an opportunity of observing uncomplicated cases. The early date at which morbid changes of a different character develop around the site of the primary lesion, but more especially, the insiduous manner in which secondary and sympathetic complaints occur and disguise the primary disorder, are other reasons for the infrequency with which this disease is encountered by surgeons. Yet, in the immense majority of cases in which pain developed by the act of defecation, or coming on soon after the bowels have moved, is a distressing symptom, an examination of the anal outlet will reveal the presence of an anal fissure. The lesion will occupy some point in the area so frequently described as the haunt of this disease, and in simple cases, will present the appearances which have been detailed. An examination in these cases is not readily accomplished for the contraction of the sphincters prevents an easy dilatation of the intestinal orifice, and—as in the case which has been related—may necessitate the employment of an anæsthetic. If the patient reclines in a semi-prone position with the chest and face to the bed and the thighs flexed and directed to the left, an inspection of the anal orifice can be made without the assistance of a third person. The patient should lift the left buttock with his left hand, and, while the surgeon separates the folds about the anus, can materially assist the examiner by making forcible bearing-down movements. It not infrequently happens, even in the simple form of the disease, that no part of the mucous membrane can be rendered apparent without the use of an anæsthetic, and in such patients I have been in the habit of pouring a little chloroform on a handkerchief and letting them inhale the vapor. Very generally the result is to suspend the contraction of the sphincter long before the patient comes under the influence of the chloroform—in other words, in these patients the first and only evidence of the use of a small amount of chloroform may be the relaxation of a previously contracted sphincter. The movements of the surgeon should then be guided by the condition revealed by inspection of the lining membrane of the rectum. In uncomplicated cases, nothing further may be required. If other changes have developed, they must determine the measures to be resorted to. In simple cases no further manipulation of the part is required.

The pain and muscular contraction of the anal outlet having been explained by the discovery of a lesion in the mucous membrane of the part, the appearance of the latter should be carefully studied. When the lesion is located in one of the inter-columnar folds, is superficial in extent and not attached to the subjacent tissues about the edges, the pain accompanying defecation will be comparatively mild, and no other movement of the rectum will cause pain but that which attends evacuation of the bowels. Constipation, or the use of a drastic purgative may, in a day, cause an alteration in the character and intensity of the pain, and in the shape and appearance of the lesion. In these cases the pain assumes the features already alluded to as characteristic of the lesion and the fissure becomes thickened at the edges, and appears agglutinated to the muscular walls beneath. The phenomena of anal eversion, described when speaking of the anatomical features of the part, are attended by traction upon and violent compression of the inflamed part; the base of the fissure or ulcer is stretched, and the walls are widely separated. The very severity of these manipulations, in some cases suffices to annul all pain for the time being, but very shortly after the structures are at rest, the pain comes on, gradually grows more and more severe, until it ultimately assumes an almost unbearable form. Between the suffering experienced in the latter class of cases, and that in those where there is but a slight degree of burning, due to a recent rupture of the lining membrane of the anus, there exist cases in which all degrees of uneasiness and pain are complained of.

The treatment adopted in the case of the medical student was much modified by the mechanical distension to which the anal sphincters were subjected while the patient was under the influence of chloroform. As a general rule, it can safely be said that no such measures as were resorted to in his case are either indicated, or necessary in the mild forms of the disease — in cases where the fissure or ulcer is the only lesion, and where pain on defecation and persistent contraction of the sphincters are the only symptoms. But in this case there were other circumstances to be considered— it was very essential that the young man should be cured at the earliest moment possible, and in the meantime, it was very desirable that no measure be adopted which would prevent his daily attendance upon the lectures at the college. The resistance of the sphincters was accordingly overcome by forcible distension — a measure which operates to check the violence of reflex contractions — and an enema containing a half ounce of the Tinct. of Rhatany to four ounces of water was ordered injected into the lower bowel morning and evening. In addition, a candle, the external surface of which was marked with slight longitudinal furrows, was thickly covered with a mixture of equal parts of mercurial ointment, and oxide of zinc ointment—the latter containing five grains of Ext. of Belladonna to each ounce—was directed to be passed into the rectum, and allowed to remain there fifteen minutes, every night. Under this treatment the young gentleman steadily improved. His bowels were rendered regular and soluble by the enemata; the pain grew less and less after each motion for the first three days, after which it ceased entirely; while his general health grew rapidly better from the first commencement of treatment. The site of the fissure was covered with fresh cicatrical tissue of a bluish cast, the succeeding Sunday, and on the sixteenth day after the operation, no trace of the fissure was discernable.

The peculiar anatomical features which distinguish lesions of an ulcerative nature at the anal outlet, as a general rule, require that special measures should be adopted in their treatment. This is so true for complicated cases— the ones which most commonly come under observation — that the fact that in uncomplicated cases simpler measures, judiciously employed, prove equally efficacious is in danger of being entirely overlooked. In the immense majority of cases, if the same care was taken of the freshly eroded or ruptured part as is employed when a lesion is mechanically caused in the treatment of other diseases of the rectum and anus, the one would recover as easily and satisfactorily as the other. In both instances there is a mechanical rupture of the lining membrane of the part: in the one case, the bowels are kept confined for a time, and then judiciously opened, thus permitting repair to ensue before the part is irritated; while in the other, if any measure is adopted it generally takes the form of a dose of cathartic medicine, the effect of which is to deluge the fresh surfaces of the anal wound with the vitiated, ill-formed and extremely irritating secretions from the whole tract of the alimentary canal. In these cases, the use of Rhatany as a topical remedy certainly merits the high encomiums pronounced upon it by Trousseau. When the circumstances of the patient are such that he must move about, a cure will be materially accelerated by employing forcible dilatation of the anal sphincters, and then making use of enemata twice a day, adding to each one from a drachm to an ounce of the Tinct. of Rhatany. I have seen great benefit accrue from the exhibition of a grain of the aqueous extract of opium after each meal, for the first three days. This acts so as to produce constipation and give the part rest. On the fourth day, the morning enema should contain from one to two ounces of cod-liver oil; it should be retained as long as possible, and before breakfast, the patient should take internally equal parts of castor and olive oils—an ounce of each. These substances will cause a profuse, bland and painless evacuation of the bowels. Should there be any pain, the site of the lesion may be thoroughly covered with an ointment similar to the one described a few moments ago—one that is very useful in these affections, and the formula for which is as follows:

℞	Extract. Belladonnæ	grs. v.
	Cerat. Simplic.	℥i.
	Misce, et adde	
	Unguent. Hydrarg.	℥i.
M.		

These measures generally suffice to relieve pure and uncomplicated cases of a mild form. When they fail, the reason will most probably be found in the existence of some complicating lesion. Occasionally, a secondary complaint will so completely overshadow the seemingly trifling primary lesion of the rectum, that no attention will be paid to the disturbance in that organ.

The complications of fissure of the anus are quite numerous. One of the most common is a slight circumscribed swelling of the skin at the anal outlet which, in those cases where the lesion is located in the lower part of its favorite area, is an infallible mark of the presence of the fissure and is the external limit of the submucous swelling and inflammatory effusion it has excited. This infiltrated and hypertrophied tab of skin often causes pain and uneasiness, and obstinately refuses to yield to any therapeutic measures which do not cure the fissure. Just beneath this cutaneous prominence, and occupying the inferior extremity of the fissure, are a number of elongated, fungiform papillae—outgrowths from the deeper layers of the muco-cutaneous folds near the margin of the anus, which have been stimulated to unhealthy growth by the irritation of the fissure. These minute polypoid masses have occasionally been confounded with a less frequent but far more important complication, that of the growth of a polypus from the anterior wall of the rectum above the internal sphincter. This polypus is suspended by its neck, and rests commonly between the folds that bound the fissure and is immediately in contact with its free surface. It not infrequently happens that internal hæmorrhoids, when large and swollen, furnish a site for a fissure or ulcer between their opposed sides. Such cases are obscure—it is hard to tell, from the symptoms alone, whether the fissure complicates the hæmorrhoids, or the hæmorrhoids the fissure. It has not seldom occurred to me to have hæmorrhoidal tumors of no small size develop on each side of a fissure, in patients under treatment for the latter; while cases of hæmorrhoids, the course of which has been complicated by the occurrence of a fissure, have been far from uncommon.

Fissure of the anus is an affection peculiarly prone to excite secondary and sympathetic complaints in neighboring organs. Diseases of the bladder, urethra and testicles in the male, and of the uterus, ovaries and vagina in the female, are exceedingly often excited by fissure of the anus. Excrutiating neuralgic pains in the extremities have been provoked by this lesion, and several cases in which there was paralysis of the lower extremities, secondary to this affection, have come under my observation. The power which diseases of the rectum exercise over neighboring organs could be well illustrated by a series of cases which at different times have been under my care, but a consideration of which will have to be postponed until such time as an entire article can be devoted to its illustration.

A case of anal fissure, whether attended or not by any of the above enumerated complications can always be cured by surgical treatment. This is an exceedingly satisfactory thought, especially when the fact is borne in mind that there is no lesion to which the human frame is subject, in which the suffering may be greater, or more out of proportion to the apparent gravity of the primary pathological change. In order to accomplish this result, a number of surgical measures may be resorted to. Some of these are now but rarely used, while others are constantly resorted to. There is no uniform plan of treatment for cases of this disease, any more than there is for any other ill on the catalogue of human miseries —the circumstances of each individual patient require study, the peculiarities of constitution, habit, age, etc., render each case unlike all other instances of the same complaint that ever came under the practitioner's observation, it matters not how extensive and varied his experience may have been. There are certain indications for treatment which uniformly present themselves, however, in every case of anal fissure, and unless the surgeon complies with their requirements, all his remedial measures will be fruitless. In what has been detailed relative to the anatomical configuration of the parts, the movements of these structures in the physiological function of defecation and the changes which ensue when the edges of the fissure become cemented as it were to the contractile tissues which form the muscular investment of the lower part of the large intestine, will be found an explanation of the nature and character of the pain induced by evacuation of the bowels and a reason why the lesion rarely, if ever, recovers without such aid as a surgeon can afford. The powers of Nature do not suffice to protect the ulcer from contact with substances which either bruise it mechanically or irritate it chemically, the functional activity of the part serves to keep the diseased site in a state of morbid irritability, while the constant stretching to which it is subjected daily, breaks up every attempt at repair as soon as made. The indications for treatment in the case of an ulcer, or fissure in this locatity are just the same as if it existed in any other part of the body, and can all be included under one or the other of the following heads:

1st, All complications must be removed; 2nd, All irritation must be allayed; 3rd, The part must be put at rest; and 4th, Its reparative power must be stimulated to healthy activity.

In some cases the practitioner can comply with every one of these indications and cure his patient without resorting to that therapeutical agent which seems inseparably connected with the popular idea of surgery and surgical measures — the knife. Rest and freedom from irritating contact alone, sometimes suffices to cause a cure. In fact, that measure which will put the parts about the site of the lesion at rest, and shield the surface of the fissure or ulcer from chemical and mechanical irritation, will prove sufficient to effect a cure in very many cases. There are very few means at the command of the surgeon which will do this. The mechanical dilatation of the sphincters which was described in the February number of this Journal comes as near fulfilling the three indications last enumerated in the above table as any one device that the practitioner can resort to. The modification of Roux's operation so generally advised in the special works on the Surgery of the Rectum and Anus, is another, and very valuable expedient. The lining membrane of the anal outlet should be rendered tense, either by the introduction of a speculum, or the aid of an assistant, and while the parts are tightly drawn, the sharp. keen edge of a bistoury should be made to pass through the swollen and infiltrated edges of the lesion, cutting freely into the base of the fissure or ulcer, and severing such of the muscular fibres as are directly in contact with its base. When so limited in extent, this operation is not a painful one. It hardly deserves to be called an operation, and does not justify the employment of an anæsthetic, unless there are complications in the case which need attention at the same time. Should there be polypoid excresences at the lower part of the fissure, or an infiltrated and hypertrophied tab of skin, which require removal, a patient would do well to choose the modified operation just described. He can then take an anæsthetic and while unconscious not only have the mucous membrane above and below the lesion as well as the tissues at its base severed at one movement of the knife, but the scissors can be brought into requisition, and the outgrowths which complicate the fissure can be snipped off, for once and all. Before such an operation is performed, the patient should have his bowels thoroughly emptied. This should be attended to the day before, and on the morning of the operation, the lower bowel should be washed out with an enema of cold water. Immediately after the operation, the bowels, should be locked up with opium, and the patient required to keep his bed for at least three days. In many cases the bed is so irksome, that the surgeon will have to compromise on an equal period of seclusion, the patient to pass most of the time on the sofa. No local application is necessary — the part should be kept quiet, and enough opium taken to render the bowels torpid for the time mentioned. At the expiration of three days, the patient should take a large dose of castor oil, and at the same time, use an enema to which olive, cod-liver, or castor oil has been added. The object of the latter is to soften the feculent matter, and to lubricate the parts over which it is to pass. After one copious and painless passage has been produced there is no more trouble — the ulcer has profited by its period of rest and freedom from irritation, and healed up. One very powerful agent in producing this result is the stimulus communicated to the diseased structures by the knife—that influence which Hunter denominated the "stimulus of the knife" and the efficacy of which is so strikingly displayed in ulcers of the leg, which, after years of inaction, take on healthy reparative action and get well as soon as one or two superficial and slight cuts have been made through their edges and base.

In other cases, if the complications are not important enough to demand removal, or special surgical treatment of their own, the ulcer can be treated on the same general principles just detailed, except that the parts about the lesion will be placed at rest by mechanically dilating the sphincters of the anus. The patient should be placed under the influence of an anæsthetic, the thumbs of the surgeon—with their palmer surfaces outwards—are to be inserted into the rectum, the fingers take firm purchase over the buttocks, and the parts gradually but thoroughly stretched until the thumbs are brought in contact with opposite tuber ischii. The effect of this violent tension is such that the muscular fibres of the external sphincter are temporarily rendered paretic, thus abolishing reflex contraction for the time being. Not only that, the thickened and agglutinated submucous tissues about the site of the fissure are torn from one another, and an increased amount of healthy blood is demanded in that situation to heal the wounds of the part. If the same after treatment is adopted in this case as was recommended in the last, the fissure will heal as readily in the one, as in other. A number of days of absolute rest is imperative in both instances, and neither measure will cure anal fissure without the bowels are at once rendered constipated, and so kept for at least three days. The necessity for the exercise of the utmost care in rendering the first few dejections soft and unirritating, I trust, is sufficiently obvious.

When mechanical dilatation has overcome the contractile power of the sphincter, a careful examination of the surface of the fissure will occasionally reveal one or two points which are so irritable that touching them ever so gently, causes excructiating pain to the patient. In such cases, fuming nitric acid applied directly to the tender points—the structures about having been carefully prepared to resist the action of the acid by being covered with oil—will at once destroy this unnatural irritability. A solution of carbonate of soda must be kept at hand whenever acid is used on any part of the body, so that the acid may be neutralized and rendered painless the moment it accomplishes the end for which it is employed. These tender points seem to be exposed nerves.

Patients often apply for relief from the agonies which this affection induces, who are unwilling to submit to either of the two plans that have been detailed for securing rest to the part, and anxiously ask if there is no other method by which they can be cured. In subsequent papers, the subject will be considered in connection with other affections which complicate it, or in relation to the quite numerous disorders that are secondary to it, and more time will be devoted to an inquiry into many similar questions than can be given to it now. But the question as to the curability of anal fissure without a resort to the knife, or the employment of mechanical dilatation, is readily answered. If there are no serious complications —fistula, abscess, hæmorrhoids, polypus or anal vegetations — and the external sphincter is not hypertrophied, a judicious employment of those measures which serve to fulfill the indications which anal fissure presents will, sooner or latter, be followed by an amelioration, and then a cure of this troublesome and horridly painful complaint. But if the external sphincter is hypertrophied, local applications will simply serve to excite reflex contraction, and the patient will finally learn that before any measure can do him good, some method must be resorted to which will temporarily overcome the contractility of his external sphincter muscle. In brief, so far as the latter class of cases is concerned, no plan of treatment will do any good which is not preceded by mechanical dilatation of the parts about the anus, or the use of the knife to such an extent as will serve to free the thickened and inflamed edges of the fissure or ulcer of the mucous membrane from the hypertrophied muscular fibres which grasp and irritate them at the terminal orifice of the large intestine.

ERRATA.

April 6, 1877.

Editor of Lancet and Observer :

Please correct the following errors that occurred in my last article—March number of the Lancet. For "affections" first page read affliction, for "disease" same page read disuse. The following sentence second page, "acting upon the supposition that she was to believe that it had been revealed in a dream." Should read, acting upon this supposition she was led to believe that it had been revealed in a dream.

Respectfully Yours,

W. H. DEWITT.

Clippings

FROM CONTINENTAL MEDICINE.

JAS. T. WHITTAKER, CIN., O.

ATROPINE IN FORENSIC MEDICINE.—Dr. A. Rabuteau calls attention to the well-known fact that large doses of morphia (2.0 morph. murriat.) may be injected into the jugulars of dogs with impunity whereas very small doses of thebain, to which man shows a greater tolerance, are fatal to dogs.

A still more remarkable fact, equally well established, is the immunity of rabbits and guinea pigs against atropine, of which 0.5 injected subcutaneously barely suffice to produce midriasis, injection of the vessels of the ear, acceleration of the pulse and slight diarrhea. A heavy guinea pig, weighing 540 grammes, received with immunity 0.2 atropine in 2 ctm. water subcutaneously while even 0.005 atropine hypodermically in man produced grave toxic effects. A tolerance in man corresponding in weight to the guinea pig should be 24 grammes.

These results from the most accurate experiments are of the highest importance in forensic attempts to establish the nature of poisons isolated from the cadaver of man and injected into the bodies of animals. As in the rodents mentioned midriasis ensues only after enormous doses—even if instilled into the eye—it will be easily seen that the small quantities isolated from dead bodies will rarely suffice to produce the expected result in rabbits. If Tardieu's method of utilizing rabbits in this way be relied upon we should often be led astray. The carnivorous animals should alone be used for atropine, especially dogs as they of all animals show most plainly from minimal doses, its well-known effects upon the pupil.—*Schmidt's Jahrbücher*, 1876.

BLOOD PROOFS.—Prof. Hüneweld gives five different proofs for blood; viz.: microscopic proof (corpuscles), the ozone or guiac proof, the spectroscopic proof (lines in the yellow and green), the crystal proof and the chemical proof, which last as it depends either upon the nitrogeneous or ferruginous ingredient of the blood has been displaced in practice by the other proofs.

For the microscopic proof the author gives a good and easily obtained means of preserving blood. It is carbonic oxide gas which is present in every illuminating gas. Blood put into a bottle filled with common lighting gas will keep for weeks with its corpuscles unchanged.

The ozone or guiac proof with the proper precautions, is almost absolute and is that generally relied upon. To an equal quantity of pure distilled oil of turpentine, chloroform and alcohol, is added glacial acetic acid in volume about one-tenth of the turpentine and then distilled water is let fall into the mixture drop by drop until the fluid ceases to be perfectly clear. The substance or fluid supposed to contain blood is then rubbed up in a small porcelain mortar with an equal quantity or a little more guiac powder. The turpentine mixture is now poured upon the blood-mixture and the whole stirred about a little with a pestle. There is developed at once, or, if the blood be very small in quantity, in a short time, an azure blue fluid capable of filtration whose color holds for half an hour. Of all animal substances red flesh (by reason of the blood it contains) is the sole and only material which gives a similar reaction.

FOR SWEATING OF THE FEET, AXILLÆ, ETC.—The most successful remedy for these unpleasant complications is salicylic acid. It is not only that the bad odor disappears after one or two applications but the quantity of sweat diminishes also and the skin is restored to its natural condition. The powder from either of the two following formulæ is strewed between the toes and in the point of the stockings.

℞. Acid salicylic 7.0, talc preparat. 15.0, amyl. 10.0 sapon 5.0. M. fl. pulv. Prof. Rolbe.—or ℞. Acid salicylic 0.5, acid tannic 1.0, talc preparat, rhizom. irid, flor. áá 20.0. M. ft. pulv. Dr. Page of Putbus.—*Der Praktische Arzt*, Jan., 1877.

SALICYLATE OF SODA' IN DIABETES. — The favorable results attending the use of salicylate of soda in diabetes reported by Prof. Ebstein, of Göttingen, induced Prof. Bartels, of Kiel to try it in two chronic cases in which everything else, including the renowned method of Düring in Hamburg, had been tried in vain. Bartel's reaches the following conclusions: First, salicylate of soda suffices to allay entirely all the symptoms of diabetes mellitus, but its effect in some cases does not seem to be permanent. Second, the symptoms of the disease yield sooner according to the large size of the dosage and the length of time the patient can tolerate the drug. Third, medium doses (9.0-10.0, daily) control the symptoms gradually, while large doses (14.0-16.0) control them progressively. Fourth, the remedy may be given in chronic diabetes mellitus, in large doses for a long time without any special disturbance of the general condition; should toxic symptons supervene they disappear quickly and perfectly after abstinence from the drug. Fifth, even long continued administration exercises only very slight irritant action upon the kidneys.—*Berlin Klin. Wochenschr.*, 1877, nos. 3 and 4.

A CURE FOR RHEUMATISM.—Dr. Franz Hiller, of Vienna maintains that the disposition to rheumatism depends chiefly upon a morbid innervation caused by defective nutrition and sanguification. This alteration of nerve activity is favored by a continuous disturbance of digestion and assimilation and manifests itself either after direct irritation of the peripheric nerves, as by exposure to cold, or as reflex from irritation of the nerve centres. The indications in the way of treatment, therefore, are to restore the normal digestion and allay the inward excitability of the nervous system.

So far as the latter indication is concerned *caustic ammonia* is an agent which " has proven itself really specific " as it surely and surprisingly swiftly relieves rheumatic pains. (Revival of an old remedy). When the author himself suffered several years ago from severe muscular rheumatism of the right shoulder with at the same time a long continued dyspepsia, he tried the caustic ammonia upon himself on the theory that as in gout it might also in rheumatism attack the uric acid diathesis. He was astonished to observe that after he had taken but one drop of ammonia with water he was able at once to make extensive movement with the arm that had been the seat of such intolerable pain for ten hours that he was unable to make the slightest motion with it. In all the cases of recent muscular rheumatism in which the author had subsequently used it, it proved a sure relief. It arrested the pains immediately. It was only when the disease was of some duration that it required one or two days to effect relief.

In the lighter cases of acute articular rheumatism and even in one case of chronic rheumatism of the fingers it proved very effective. In the case of the finger rheumatism the simple external application of caustic ammonia for two days sufficed to allay the pain, disperse the swelling and restore motion to joints hitherto stiff.

It is only when the rheumatism is attended with sharp fever that the remedy fails, but after subsidence of the fever it becomes again effective.—*Med. Neuigk. f. Prakt. Aerzte*, Feb. 10th., 1877.

Dr. Wm. Helliday, of Stockholm, treats of this same subject, myitis (rheumatica) at length in the Nord. Med. Arx., viii, 2, Nov. 16. He places his main reliance in the way of treatment upon *massage*, that is, friction, shampooning, pressing, stroking etc., always in the course of the venous current. In recent cases, the effect is striking, but in other cases time (weeks, even months) is required to effect the cure. The treatment must be persisted in until all palpable change in the muscle has disappeared. The various liniments employed owe their efficacy to the *massage* with which they are applied.

ANOTHER CASE OF NERVE-STRETCHING.—Prof. Ferd. Petersen, of Kiel, reports to the *Centralblatt f. Chirurgie*, Dec. 9, 1876, another case of nerve-stretching. He says: " Since the report of V. Nussbaum's celebrated case in the "Deutschen Zeit-schift," of Chirurgie, four years have now elapsed, and as Voit has shown the ratio of operations of this kind has been exceedingly small. Surgeons seem to be afraid of it. I have therefore published the following cure in the hope that it will assist in making the operation seem less formidable. He thereupon details the case of a blacksmith who was struck in the inner side of the right leg by a penetrating piece of iron the size of the end of the little finger. The iron flew from the anvil with force under a blow from the hammer. The wound healed under warm water dressings almost without suppuration. But the foreign body could not be extracted because it could not be felt. About a month later the patient presented himself with a stiff knee and abducted leg complaining of agonizing pain on the slightest use of the leg. At rest there was no pain. On motion the pain had its seat in the middle of the leg, inside and somewhat behind the tibia. Here was a point also of tenderness and a greater resistance. The patient insisted that the foreign body lay here and plead for an operation for its removal. He was willing to abstain from chloroform that the surgeon might use his sense of pain in its localization.

September, 5.—The incision was made after the application of Esmarch's bandage. But the foreign body was nowhere to be felt. A needle was run in, in every direction but the iron could not be detected. The exposed nerve, however, was exceedingly sensitive, and in one place showed a slight extravasation upon its surface with reddened surroundings. "It now occurred to me to make Nussbaum's operation. Having isolated the nerve I surrounded it with a blunt hook, drew out a loop of it and stretched it in both directions. I now returned the elongated loop, put in a drainage tube sewed up the wound and dressed it antiseptically. The patient bore the severe pain with great heroism, smoking a cigar all the time. For a few days there was still pain but less than before. In eight days he was able to walk about without pain. In twenty days he resumed work. About a month later he was seen perfectly well. The foreign body undoubtedly remains but is encapsuled. The author believed that the iron struck and contused the nerve in passing it and in consequence caused abnormal adhesions between the nerve and muscle so that every motion of the muscle would cause intense pain. Stretching the nerves severed the adhesions and set the nerve free.

Atropine and Epilepsy.—Dr. Sfetlin, of Vienna, has reached the conclusion from numerous experiments on epileptic and healthy guinea pigs that atropia administered in small doses daily without increase, reduces and diminishes reflex action. Hence its efficacy in epilepsy, an exquisite reflex neurosis. The experimenter was able with atropine to prevent perfectly and permanently attacks of epilepsy. In larger doses (0.008—0.02) given daily 14 to 20 days, atropine increases reflex action in high degree. It is even possible with such doses to superinduce epilepsy in animals cured by smaller dosage.

The author made a number of experiments on man in Leidesdorf's psychological clinic and concludes that atropine is an exceedingly fine remedy for epilepsy. There is no danger whatever of toxic effect if the single daily dose of 0.001 be kept up without increase. Even after a months use—and so long it must be used for successful results—no toxic effects supervene. It was only in a few very susceptible cases that dilatation of the pupil and irritation of the throat was observed. If the remedy be administered in full form its slower absorption prevents toxicæmia even in these cases. The following is the formula for pill form.

℞. Atrop. Sulph. 0.05, pulv. et. ext. glycerrhiz. q. s. ut. ft. mass. In pil. 50 div. S. one pill per day.

The author details a number of cases of the worst forms (hereditary, in childhood, 16 to 20 attacks a day; also a case of so-called psychical epilepsy) perfectly cured by atropine administered for several months.—*Allgem. Wiener Ztg.*—*Der Praxtischer Arzt*, Jan., 1877.

THE MOTOR CENTRES IN THE CEREBRUM.—The *Rivista Spirimentale di Feniatria e. di Medicina Legale* edited by Prof. Carlo Livi, contains in its first volume (1876) an interesting paper from Prof. Schiff, of Florence on the so-called motor centres in the cerebrum." The author takes the view that all results of experimentation by irritation are invalid, because the positive effect of irritation refers not to a centre but to the periphery. Only section or destruction would give definite results as to centres. And when the parts of the brain considered motion centres have been destroyed no paralysis are ever left, but on the contrary, always disturbances of sensation. The so-called centers therefore are in no sense motor and the twitchings and convulsions of muscles resulting from galvanic irritation are of superficial origin!

PROGRESSIVE FACIAL HEMIATROPHY.—Dr. Fanturi reports the first case of this affection in Italian medical literature and the fourteenth in the Medical press in general. The case was that of a young man seemingly in good health and exempt from every hereditary vice. As a sequel to a febrile affection (probably typhoid fever), there presented on his face a superficial circular spot about the size of a finger nail, deprived of pigment and having its hairs bent and discolored. In the course of two months the spot became a long groove which advanced transversely across the temporo-frontal region. Other atrophic spots soon presented on the temple, the forehead, the eye-lid and the nose. In the temporal region, atrophy was so marked that the bones appeared prominent. There was analgesia, but perfect electric sensibility. The author considers the disease a tropho-neurosis. — *Movimento Medico di Napoli.*

A CURE FOR FROZEN NOSES.—Frozen noses have hitherto resisted every method of treatment. Even the operative interferences resorted to have been entirely futile. With the conviction that the *schwerpunkt* of the the affection lay in the dilatation of the capillaries and circumscribed vascularity of the nose, Dr. Ridinger, of Würzburg, undertook to cure a lady in whose case everything possible had been tried in vain by hypodermic injections of ergotin in the upper third of the nose where the skin can be easily raised. The very first injection changed the color from a bluish red to white so quickly and completely that the lady was rendered perfectly happy.—*Archive f. Klin. Chir.*, 1876, 2.

THE CLOUD IN URINE.—The cloudiness present in urine after it has stood a short time consists according to C. Mehu ("de la nonexistence du mucus de l' urine" Bull. Gén. de Thér, 1876, xcl, p. 161) not of mucus, as commonly believed, but epithelial cells from the bladder and the detritus of epithelium; in the female, epithelial or pus cells from the vagina also. There is no mucine in the cloud nor in the clear solution. The author's further investigations relate to the condition of the urine when it contains pus or any kind of colorless elements in any quantity. Such urine becomes cloudy when cold, after filtration, on the addition of acetic acid. This cloudiness depends upon pyin. Even a slight irritation of the bladder will enable acetic acid to becloud the urine; but not if it be perfectly healthy.

THE VISCOUNT de A. J. Lejumean Kergaradec, aged 90, died in Paris, Feb. 5th, 1877.

Kergaradec was the disoverer of the placental bruit in 1822. Mayor of Geneva announced his discovery of the fœtal heart-sounds in 1818. But as this was before the discovery of auscultation it received little or no attention. Kergaradec was the pupil and friend of Lænnec, the discoverer of auscultation and it was in the practice of this discovery that Kergaradec verified that of Mayor and established his own. The placental souffle was a pass whisper to Kergaradec through the doors of the Paris Academy of Medicine in 1823 into the section of medical pathology.

[*At a recent meeting of the Cincinnati Academy of Medicine, Dr. C. S, Muscroft was appointed memorialist to Sir Wm. Ferguson and Dr. Jas. T. Whittaker to Kergaradec. The following paper on Kergaradec was read before the Academy by Dr. Whittaker, April 3rd.* 1877.]

KERGARADEC.

Emerson, in his dissertation upon Shakespeare, makes the observation that "great men are more distinguished by range and extent than by originality."

In the world of science, however, especially of medical science, the distinction is usually the crown of discovery. We associate the names of our great men with single revelations or disclosures; Harvey's, for instance, with the circulation, Haller's with nerve irritability, Magendie's with the different functions of the different spinal nerve roots. With the name of Asellius comes the picture of the lacteals, with Virchow thrombosis, with Cohnheim corpuscular migration. It matters not whether the discovery shall have been the result, as our patent laws put it, of luck, labor or inspiration, the fame is the same. Asellius' discovery of the lacteals was mere accident, as is historically established, Harvey's discovery of the circulation was the result of twenty years study, while Haller's enunciation of nerve irritability, as independent of that of muscle, must be looked upon, in the absence of the easy proof with which we can demonstrate it now, as little short of inspiration. A man may fix his name in medicine for several generations by his personal qualities like Paracelsus, by his literary attainments like Sprengel, by his eloquence like Trousseau, but it is after all only a discovery, however simple, that will stand his statue immovably in the coveted niche of the temple of fame.

Recently died in Paris, at the advanced age of 90 years, the discoverer of the placental souffle and practically of the sound of the fœtal heart, Dr. Le Jumeau, *vicomte de Kergaradec*, by which title he is usually known. Passing reference has every where been made to the death of Kergaradec but there is so much that is worthy of contemplation or better of emulation in his character and such absolutely inestimable value to his discoveries, as universally recognized to-day, as to justify a more extended notice of his life and work.

I do not by any means pretend to claim for Kergaradec absolute priority of discovery of the sound of the fœtal heart. Mayor of Geneva had already announced it, in the *Bibliotheque Universelle de Geneve* Vol. IX Nov. 1818, three years before any public communication by Kergaradec. Mayor was listening for active movements of the fœtus with the head directly upon the abdomen of the mother when his quick ear detected the finer movements of the fœtal heart. It was a purely accidental discovery, but was not without its import to the Genevese physician. He even proposed to utilize its presence or absence to determine the life or death of the child. Like most of the discoveries of pure accident, however, the sound of the fœtal heart did not impress its real discoverer with its full and varied significance. There was no mention of it further and it was reserved for Kergaradec, the friend and pupil of Læennec to rediscover it and fix it as a fact forever. Kergaradec's discovery or rediscovery was totally independent of and without the knowledge of the previous publication of the physician of Geneva. It happened in the prosecution of studies with the stethoscope, then the novelty, and the discovery of his friend and preceptor, Læennec. Kergaradec was listening for a wave sound, a motion of the waters by concussion from the limbs of the fœtus, which he failed to detect, of course, as there was no free space or air by which sound could be produced but it was while still listening for these impossible sounds that there struck his ear the tic tac of the fœtal heart which he recognized at once. Listening now for the fœtal heart he detected that other sound the birth right of whose discovery is indisputably his, viz: the sound of the uterine or utero-placental souffle. The fœtal heart sound meant more to Kergaradec than to

Mayor because it occurred to Kergaradec in the direct line of his studies in auscultation. Most of the so called accidental discoveries in medicine have been made in this way. It happens but very seldom either in medicine or any other science, that a man may reason out a discovery from known facts and then confirm it by observation as did Leverrier the existence of a planet from perturbations in the orbits of known planets, or as did Harvey the circulation of the blood from the effects of ligatures and from valves in the veins. The great number of our acquisitions have come to individuals, incidentally, as it were, after they have come to the right places to meet them, just as the meteors fall upon the earth when it reaches certain parts of its orbit. Louis Hamm the young German student of Leuwenhoek was peering into semen with the newly discovered microscope when he thus accidentally discovered the spermatozoids. Malpighi turned his lens upon the blood and accidentally again discovered in it little bodies, corpuscles. Fabricius slit up the long veins of the extremities and accidentally came upon the valves. No doubt there were as many in Fabricius' time as now, to decry the value of such impractical studies, until Harvey constructed with the valves the systemic circulation.

Kergaradec was listening for what he might hear from the living fœtus at a period when the sense of hearing was being trained to practical use, when there fell upon his ear, as has been said, the sound of the fœtal heart. The significance of this sound was more full to Kergaradec than to Mayor because of the training of Kergaradec in stethoscopy. Therefore it was that he, rather than Mayor, could speak with the authority that carried conviction. Said Faust to Wagner:

> "Doch werdet ihr nie Herz zu Herzen schaffen,
> Wenn es euch nicht von Herzen geht."

Therefore it is that the discovery of the fœtal heart sound in its full and varied meaning, belongs rather to Kergaradec than any other, if not in the priority of publication, in practice.

What quick appreciation these sounds received we may learn from the fact that, in the second edition of his great work on auscultation, Lænnec incorporated the *Memoire seu l'Auscultation, appliquee a l Etude de la Grosesse*, read by Kergaradec before the Royal Academy of Medicine Dec. 1821, and declared that he had confirmed the truth of all its statements. Lænnec himself paid to the skill of Kergaradec the highest compliment he could possibly receive —a compliment keenly appreciated, under the circumstances, as we may well understand—when he wrote "*Letude des phenomenes dont nous venons de parler dans cet article demande incomparablement plus d attention que celle de tous ceux que presentent les maladies de la poitrine.*" *Vol. II, p. 466.

Of the varied significance of the fœtal heart sounds in determination of life, position, single or multiple fœtus etc., this is no place to speak, but I cannot refrain from noticing for one moment the meaning of it in determination of pregnancy itself. I have before me as I write, a work on Obstetrics published at Wiemar in 1822, Foriep's well known "Hand-buch der Geburtshülfe," a text book in its day at various schools. News traveled slowly 50 years ago. No mention whatever is made of the sounds of the fœtal heart. Under the diagnosis of pregnancy are given many curious signs, thickness of the neck, for instance, from thyroid enlargement, increase in the size of the buttocks etc., — these, of course, after cessation of menses, changes in the abdomen, mammæ, cervix uteir etc.,—and finally the author concludes: p. 186. *Es gibt also kein einziges absolut sicheres Zeichen, was allein und in allen Fällen über das Dasein einer Schwangerschaft entscheiden kann. ausser den wirklichen Anfang der Geburts-arbeit, wo die durch die Haut in dem geöffneten Mutter-munde deutlich fühlbaren Theile des Kindes freilich keinem Zweifel mehr Raum lassen.**

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*The study of the phenomena we are about to describe demands incomparably more attention than that of any connected with the diseases of the chest.

Since the days of Kergaradec a skin disease is not easier to read than is pregnancy after the fourth or fifth month.

Kergaradec rested from his scientific labors upon his great discoveries and although he continued to write abundantly it was plain to see that the flowery fields of literature had enticed him from the more rugged paths of science. The most finished, the completely rounded off and polished education is that which blends the virtues and balances the faults pertaining to a purely literary or purely scientific pursuit. The scientific element in medical education is more the business element, the literary element is the art, and so it may be said of Kergaradec at this period of his life, as was said once for Goethe by Carlyle. "There was art enough for a heavenly firmament and business enough for a solid earth."

The private character of Kergaradec was the *type ideal* of a physician.

"There occur now then in history," said his compatriot and colleague M. Chaufford, in his eulogy of his friend, "venerable and venerated figures uniting at once peace of soul, elevation of character, purity of life, amenity of manners and that indescribable penetrating charm which inspires affection as much as respect. Such was our confrere Dr. Le Jumeau, the most noble representative of all medical virtue and professional honor." We catch a glimpse of the life he had marked out for himself and which he really lived in his inaugural thesis of 1809. Although for a long time interne at the St. Antonie and Hotel Dieu at Paris, whence he might have selected from an abundance of purely practical subjects, he preferred to base his entry into his chosen profession upon "The Necessity and Dignity of Medicine and the Necessary Qualities for a Medical Man."

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*There is therefore no single absolute sign that alone and in all cases determines the existence of pregnancy except the actual commencement of labor, dilatation of the os and distinct palpation of the presenting parts of the fœtus.

"If we pass now," he wrote, "to the qualities of the heart, we must put in the front rank that sympathy which makes us feel for our kind. This quality may not be acquired. It is the most precious gift of nature and woe to that physician who does not possess it. It is this feeling which inspires our patients with confidence, and ourselves with devices for their relief. And it is this feeling which gives us courage in the times of public calamity to brave every danger for the succor of the sick."

"The physician" he continued "must be entirely disinterested, attend the poor just as the rich, go to the garret with the same haste as to the most brilliant saloon. He must be gentle to those beneath him, simple to those around him and proud to those above him. Human passion shall have no access to his breast. The love of his fellows should be his only passion, to be useful to them his sole ambition. The physician who acquits himself of his duties with probity and honor merits the exclamation of Hippocrates: *Medicus philosophus deo similis habetur!* The gratitude of his patient and the general approbation should be his sweetest recompense; but he must be able to rise above all such considerations and when the injustice of man refuses them, he may still find in the approval of his own conscience every happiness and peace."

This was the life of Kergaradec. It may be said of it that the last of it was true to the first. His ideal of a medical man was a man with a heart. Kergaradec had a heart as good as may be made of brains. The sympathy of which he spoke, however necessary to a physician even from a politic point of view, does not betoken the highest good. His discovery was his real benefaction, not only to the few who surrounded him, like his sympathy, but to all mankind everywhere, to the generations of men who should follow.

He died crowned with honor as with years. Only a short time before his death, he received from the Academy its last and highest degree. He was presented with the medal, decreed by a felicitous inspiration to every member of fifty years.

In the flush of his youth he had offered to the Academy the first tribute he could bring, and in the decrepitude of his age the Academy had offered him the last solace in its gift. This peculiar reverence, on the one hand, and recognition, on the other, has singular fascination for the student of human nature as they are features only to be seen among people the most cultivated and refined.

There is a double moral attached to the story of this life. One is professional, the other personal. The first teaches us that we may at any moment strike a vein of purest metal if we do not drop our tools. The second shows us the life of a man who, though distinguished among his compeers by his deeds, was content to rest his reputation upon the pure and simple love of his fellow men. Here, at least, is treasure, beyond the moth of malice or the rust of rancor and within easy reach of the humblest life in our pale. And when we look upon medical men as a class, considering, in their relations to patients, the necessary sacrifice of personal comfort; considering, in their relations to each other, the inevitable clashing of interests; remembering more especially, the trivialty of action,—the shrugging of a shoulder, the lifting of a brow—which may bring a fellow physician into disrepute, the wonder is not that there should occasionally arise one whose recognized talent should elevate him far above ignoble conduct, but that there should actually exist among the rank and file, at all places and in all times, so many men, obscure to fortune and to fame, but none the less endowed with the same titles of nobility.

Proceedings of Societies.

AMERICAN MEDICAL ASSOCIATION.

PHILADELPHIA, 1400 PINE STREET,
S. W. corner Broad.

The Twenty-eighth Annual Session will be held in the city of Chicago, Ill., on Tuesday, June 5, 1877, in Farwell Hall, at 11 A. M.

"The delegates shall receive their appointment from permanently organized State Medical Societies, and such County and District Medical Societies as are recognized by *representation in their respective State Societies*, and from the Medical Department of the Army and Navy of the United States."

"Each State, County and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number: *Provided*, however, that the number of delegates for any particular state, territory, county, city, or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association."

Secretaries of Medical Societies as above designated are earnestly requested to forward, *at once*, lists of their delegates. Will you kindly send to the undersigned a list of your members with their residences, in order that a correct record may be made of all who are in affiliation with this body?

"The Chairman of the several sections shall prepare and read in the general sessions of the Association, papers on the advances and discoveries of the past year in the branches of science included in their respective Sections. * * * *"—BY-LAWS, Art. II., Sec. 4.

Sections; Practice of Medicine, Materia Medica and Physiology; Dr. P. G. Robinson, St. Louis, Mo., Chairman; Dr. B. A. Vaughan, Columbus, Miss., Secretary.

Committee appointed to report to this section—On Clinical Observations; Dr. N. S. Davis, Ill., Chairman; Dr. H. A. Johnson, Ill. Dr. J. B. Johnson, Mo.

Obstetrics and Diseases of Women and Children; Dr. James P. White, Buffalo, N. Y., Chairman; Dr. Robert Battey, Atlanta, Ga., Secretary.

Surgery and Anatomy; Dr.——, Chairman; Dr. Moses Gunn, Chicago, Ill., Secretary.

Medical Jurisprudence, Chemistry and Psychology; Dr. Eugene Grissom, Raleigh, N. C., Chairman; Dr. E. A. Hildreth, Wheeling, W. Va., Secretary.

State Medicine and Public Hygiene; Dr. Ezra M. Hunt, Metuchen, N. J., Chairman; Dr. D. R. Wallace, Waco, Texas, Secretary.

"Papers appropriate to the several Sections, in order to secure consideration and action, must be sent to the Secretary of the appropriate Section at least one month before the meeting which is to act upon them. It shall be the duty of the Secretary to whom such papers are sent, to examine them with care, and, with the advice of the Chairman of his Section, to determine the time and order of their presentation, and give due notice of the same. * * * *" —BY-LAWS, Art. II., Sec. 5.

The following Committees are expected to report:—

On Influence of Climate on Pulmonary Diseases in Florida; Dr. E. T. Sabal, Fla., Chairman.

On Animal Vaccination; Dr. Henry A. Martin, Mass., Chairman.

On the Inheritance of Syphilis; Dr. J. W. Thompson, Ky., Chairman.

On Prize Essays; Dr. N. S. Davis, Ill., Chairman.

On Necrology; Dr. S. C. Chew, Md., Chairman.

On Catalogue of National Library; Dr. H. C. Wood, Pa., Chairman.

WM. B. ATKINSON, M. D.,
Permanent Secretary.

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Review.

Review of Nervous Disorders and Insanity.

BY PROF. D. A. MORSE, COLUMBUS, O.

Recherches Sur L'Anatomie Pathologique et La Nature De La Paralysie Generale. Par les Docteurs Henry Bonnet et Poincare. Paris, 1876. (N. Y., Wm. Wood & Co., $8.80).

Considerations Sur Les Seige, La Nature, Le Causes De La Folie Paraltique, Par le Dr. Chas. Burlureaux, Paris, 1874. (Upon the Nature and Pathology of General Paralysis, by Drs. Bonnet and Poincare, and Burlureaux to which is added the views of many other writers, for reasons given in the text; and also some remarks upon the vaso-motor nervous system).

Ferrier; FUNCTIONS OF THE BRAIN; New York, 1876.

Etude experimentale de l'influence exercée par la faradisation de l'écorce grise du cerveau sur quelques fonctions de la vie organique, Par le Dr. Bochefontaine, Archives de Physiologie, No. 2, 1876.

Etude relative á l'influence de l'encephale sur les muscles de la vie organique, et spécialement sur les organes cardio-vasculaires, par le Dr. Louis Couty *Archiv. de Physiol.* No. 6, 1876.

Experimentaller Beitrag zur electrischen Reizung der Hirnerinde, von Dr. C. Fürstner, Archiv. für Psychiatrie und Nervekrankheiten. vi. Band, 3 Heft., 1876.

(Experiments with electricity upon the cortical substance of the brain to determine its functions, its topography, and its influence upon organic life.)—By Bochefontaine, Couty, and Fürstner.

To the general reader of medical literature much that is written upon the subject of general paralysis is of little interest, for at once, when he encounters a lengthy article upon it, he asks, "of what value is it to me in my practice—I never treat such cases." But when we consider that if he does not he sometimes encounters the disease, and that an early recognition of it is of the utmost importance to the patient, and also aside from this, that nearly every feature of the disease bears some relation to common forms of nervous disorder, it demands as careful attention as many diseases of the heart, liver, kidneys, and other organs to which he does give attention.

Every point considered of its nature and pathology has as much importance in the relation it sustains to other diseases and the light thrown upon them as any one disease can possibly have when isolated from the general class to which it belongs. In no disease to which man is subject is there so many important questions of physiology and pathology involved as in this, so many different and seemingly opposite conditions manifest, so many antagonistic and contradictory statements made by writers. In this disease every portion of the nervous system has been arraigned by pathologists as being the seat of the disease. This alone is evidence that it is not well understood and that its pathology is difficult to unveil. To bring together the present knowledge of the subject, as well as some views of the physiology and pathology of the *vaso motor system*, which is alleged by Bonnet and Poincare to be the seat of the disease, we connect with a review of their work several late monographs upon this and kindred subjects, thus presenting in a continuous review the important points involved.

Were we to attempt to write a review of the work mentioned without a brief notice of earlier writers and the theories advanced by them, we would omit much that must be supplied before it could be assigned its proper place in the literature of insanity. Whether we agree with the views of the work or not, it is a valuable work, excites many important questions, and calls for an extended investigation of all that pertains to the sympathetic nervous system, as well as the brain and spinal cord, these last for the pathological conditions found and the importance attached to them by writers. We do not present these remarks as an apology for having written upon the subject. If we judge from the number of writers and the extent of their labors, general paralysis, in the literature of insanity, is one of the most important subjects treated of, or else this multitude of observers have not been engaged in a fruitless effort to render conspicuous a subject deserving of little attention.

In a paper* presented to the Ohio State Medical Society, in 1874, contained in the transactions of that year, we reviewed the works then extant, presenting fully the views entertained upon the course, symptoms, duration, and progress of the disease, omitting nothing except a consideration of the nature and pathology, of any great value, presenting the views of authors in the order of their appearance as to time, quoting at considerable length many works which were not accessible to the general reader and others not published in our language. The length of that review was such that we were compelled to omit the discussion of many questions of interest and many deductions from the observations of others. Our space will not now permit us to review as fully again the views of writers upon each point there presented—we must refer the reader to the Transactions, and at present dwell more upon the NATURE and PATHOLOGY of the subject. Our present review will then to some extent be a brief of the subject as well as of the writers mentioned above. This will give us a far better idea of the advance of our knowledge of the disease. Each writer has his peculiar views of the nature and pathology of general paralysis. Some believe it a true inflammation of the cortex of the brain, some that the white substance is involved, some think the seat is in the blood-vessels, while Bonnet and Poincare labor to prove the seat to be in the sympathetic nervous system.

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*Can be obtained for fifty cents of E. Steiger, publisher and importer, 22 and 24 Frankfort Street, New York. Title: A CRITICAL REVIEW OF THE LITERATURE OF GENERAL PARALYSIS. 120 pp., 8vo.

Burlureaux concludes his work with these remarks: "We have wished to prove three things, first, that the seat of general paralysis is at the periphery of the encephalon; second, that this disease is of an inflammatory nature; third, that all causes which produce inflammation or repeated congestions of the brain, can produce general paralysis."

"We have tried to prove the first point in two ways, directly, and indirectly; directly, in showing that each time there is general paralysis, we find at the autopsy, lesions of the periphery of the encephalon; indirectly, by showing that each time that an alteration of the brain is seated elsewhere, as a tumor, sclerosis, etc., there is not general paralysis." The second point, we have proved by the considerations relative to the lesions, symptoms, and treatment of general paralysis.

"The third point we have done our best to demonstrate directly, and in aid of this we have had the experience furnished us daily, observations made with care, for the greater part of which we are under obligations to Mons. Voisin, Physician to the Saltpétriére."

The two main theories will be found to be that of 1-inflammation, and 2-disease of the sympathetic system. As a result of the last, disease of vaso motor system, we have congestion, degeneration, inflammation; spasm of blood vessels resulting in anæmia, degeneration from want of nutriment, etc., so that it will be necessary to view the physiology and pathology entire and not in relation to any one special result, or any one particular symptom. How are *all* the conditions found after death, and symptoms previous to death, related to each other? This is the problem we should attempt to solve.

HISTORY OF GENERAL PARALYSIS.

To Dr. Haslam, 1798, is given the credit of being the first to call attention to this disease, but the French were the first to give attention to the symptoms and pathology.

Dr. Brosius, *Der Irrenfreund*, Nos. 1 and 3, 1876, article *Das Auge der Paralytaker* says: "the French were the first to point out but the Germans gave to these matters more profound attention." That which interests us most is not priority of claims, whether English, French or German, but rather the views and observations of the writers upon the nature and pathology of the disease, and in this respect many points necessary to throw light upon these two points deserve consideration as we pass along. Such are the following. Is the disease a new one engendered by modern civilization? (*i. e.* its attendant vices operating upon a more irritable and weakened nervous system). Is it an old disease that manifests itself whenever the conditions favorable for its development are brought to bear upon mankind? In other words, has it always existed and been overlooked until the time of Haslam, Esquirol, Delaye, Bayle, and Calmeil? Is it the final summing up of the effects of a chain of causes that singly may result in the various functional nervous disorders any of which in succeeding generations may be metamorphosed into organic of which this is the most perfect type; a mental and physical disease running in parallel lines to a fatal termination? If so then we will find it most prevalent in the old centers of population where enervating vices and habits most abound. Of this I am convinced both from the reports of asylums and the views of medical men of great experience. In a conversation a few weeks since with Dr. R. Gundry, concerning the infrequency of general paralysis at Athens, the asylum then under his charge, he remarked: "we do not have much of it there." I referred to an asylum located near a large city the reports of which showed a considerable number of deaths from this disease. He replied, "yes, you find it there for those patients are more subject to the influences that produce it, but our patients are nearly all from the country and are not so much the victims of the excesses so many in the city indulge in." One of the most powerful of these causes is sexual indulgence. (Blanford). This remark of the doctor's to which I have referred is fully sustained by the evidence of all competent attentive observers.

In an article in the Ohio Medical and Surgical Journal for January 1859, by Dr. M. H. Ranney, Resident Physician of the New York City Lunatic Asylum, the writer says:

"This disease hasbeen but recently discriminated from other forms of paralysis. * * * * * * * *

It is a singular fact, however, that its frequency has greatly in creased during the last sixteen years, as will be seen by reference the various annual reports of the Superintendents of American Hospitals for the insane. In the report of the McLane Asylum, for the year 1844, Dr. Bell remarks, I have regarded it as a somewhat curious fact, that it is only within the last three years that this disease has been admitted to this institution. As late as my visit to Europe in 1840, it was unknown within our walls; nor, after seeing it so often manifested there, can I recall any case in our register which would at all meet its characteristics, rendering it certain that it was not overlooked. Since that period, however, we have abundant evidence that it is not a form of disease peculiar to other countries. * * * * * * *

General paralysis occurs more frequently among males than females; in fact among the latter it is of rare occurrence. No good reason has been assigned for this—the predisposing and exciting causes to which the disease is referred being found in operation in both sexes. At Charenton, of 619 insane (366 men and 253 women), there were 109 cases of general paralysis, 95 males and fourteen females.

Into the asylum at Halle, in the Tyrol, 257 men and 181 women were admitted, among whom were 28 cases of general paralysis, 22 men, 6 women.

In the New York City Lunatic Asylum, of 5,092, (2,391 men, 2,701 women) under treatment within the last eleven years, 85 deaths have occurred, 76 males, 9 females, from this disease."

Griesinger says: "general paralysis is nowhere as prevalent as in Paris." We have the best evidence then that general paralysis is the result of the vices prevalent in crowded cities, added to other debilitating influences, as the culminating influence of heredity, etc.; that males are more frequently attacked than females; but we do not agree with writers who claim that the predisposing and exciting causes operate alike in both sexes. For instance, sexual indulgence exhausts more permanently and powerfully the male than the female for reasons unnecessary to mention. We do not believe, consequently, that general paralysis is a new disease, but that wherever the necessary influences are brought to bear it will be manifest. We believe, however, that general paralysis will not always result from the operation of any given cause adequate to its production, but that various other forms of brain and nerve disorder may result, softening, degeneration of blood-vessels etc., instead. The more carefully the pathology of these diseases is studied the more clearly is this manifest.

We have said the French were the first to engage in a study of this disease. Their first writer was Esquirol, who in 1805 called attention to general paralysis as a *complication* of *dementia*. He declared complicated dementia incurable.

Georget, 1820, a pupil of Esquirol, wrote upon the disease stating that "the disorganization which produces the mental state causes at the same time in more than half the cases, *another* nervous disease, muscular paralysis, either general or partial," that is, two diseases as the result of the same physical cause. He called the mental symptoms *dementia*, the physical, *general paralysis*. He is the first writer who fully described the essential symptoms. In our report we have given a full translation of his description. He divides the disease into three stages, describing each separately.

Delage, 1824, wrote upon what he termed *incomplete general paralysis*, adding the term incomplete to the designation of Georget. The reasons given were that the paralysis, though general, is very rarely complete, a remark nearly every subsequent writer has made. His pathology was: organic changes in the brain, softening, hardening, or atrophy, with adherence of the meninges. He studied the physical rather than mental phenomena.

Bayle wrote three different treatises: 1822—1825—1826. He advanced the knowledge of the subject more than any writer who had preceded him. His pathology was that general paralysis is due to inflammation of the arachnoid, hence he termed it, *arachnitis chronique*. He divided the course of the disease into three periods: first, congestion; second, mania, inflammation; third, dementia, with general paralysis, weakening of the intellectual faculties, convulsive movements, epileptiform attacks, the *cause* of all being meningitis; hence both physical and mental symptoms being due to one cause constitute but one disease.

Calmeil, 1826, published his work: *De la Paralysie considéré chez les alienes*, and later his larger work upon *cerebral inflammations*, a most valuable work. Both works contain numerous reports of cases. His view of the pathology was that it was located as a diffused chronic inflammation of the cortex and meninges of the brain. Hence he termed it: *Periencephalite chronique diffuse.*

Pinel and Guislain gave little attention to the disease, or have left little upon record concerning it. Parchappe, Foville, and Pinel—Grandchamp have left on record the following conclusions which apply to both the nature and pathology:

"First, the alterations of the cortical substance are closely related to intellectual derangements."

"Second, alterations of the white substance are directly related to alteration of movements, the anatomico-pathologic character of general paralysis of the insane consists in an induration of the white substance of the brain."

Belehomme thought, "lesions of intelligence precede always those of motion, and lesions of the cortical substance those of the white." This is erroneous, as lesion of intellect may either precede or follow lesion of motor centers.

Parchappe has left also on record his views that the common lesion of general paralysis is softening of the middle part, or layer, of gray cortical substance. A superior and inferior layer that is healthy contain between them this diseased layer. Gratiolet says: "we can establish with the scalpel this limit described by Parchappe. Frœrichs speaks of induration of the gray substance in its relation to Sclerosis.

Bouillaud, 1846, attempted to explain the locomotor disturbance by attributing it to lesion of the cerebellum. Luys, 1873, developed the views of Bouillaud. Calmeil spoke of this lesion, but did not attribute to it much importance as a cause of general paralysis. He says: "It is true the lesions we encounter in the brain of those attacked with general paralysis are often observed in a less degree at the same time in the cerebellum." This may account for the predominance of ataxic symptoms in some cases—and their appearance in all cases, sooner or later in the disease.

Baillarger attributes to induration of the white substance much importance as a pathological condition and believes it a constant fact.

Magnan, 1866, regards the lesion as "diffused, common to the white and gray substance: two vast foci of irritation diffused, with an invading, penetrating tendency, and which may invade the whole cerebral mass, reaching the most profound parts, extending from the cortical layers of the periphery to the center, and from the ventricles of the center to the periphery. It is the aggregate of these conditions which constitute the proper lesion of general paralysis and which concur in the production of interstitial, diffuse general encephalitis."

Westphall and Magnan cite cases in which the seat of the trouble seems to be the center of the brain and from whence the disease radiates to the circumference—the meninges exhibiting little lesion.

The ventricles manifest lesion of their walls. These have been considered by some writers as deserving much attention. Joire regarded the granulations described by Brunner in .1694, and in 1862 by Virchow and Rokitansky, as playing an important part in the disease.

Burlureaux says: "granulations are found upon the walls of the ventricles, and especially the fourth, and serous accumulation particulary in the lateral.

Magnan reported cases in 1874 (*Archives de Physiologie*), in which these conditions were found in simple insanity. Jaccoud has shown that effusion of serum in the ventricles may cause vertigo, torpor of intellect, troubles of speech, and above all general paresis, yet differing from general paralysis.

Meschede attributes to degeneration of the cortical cells the essential anatomico-pathological condition. "Microscopically we observe a red coloration of the interior layer of the cortical substance, with capillary apoplexy in form of points." He mentions, coloring of the cells.

Lockhart Clark, 1866 and 7 notes the pigmentation of the cells. Other writers place much stress upon it. It however results in other diseases. Hammond, 1876, treats of it in its relation to malaria, but adds nothing to previous knowledge. With the natural, normal cell there is more or less pigment. It varies in different parts of the body in quantity and color. It is this that gives the characteristic appearance to the gray cell.

R. Wagner, (Neurolog. Untersuch, p. 6.) Says the cells of the intervertebral ganglia often contain, in the vicinity of their nucleus, an accumulation of yellow, yellowish-brown, or large pigment granules, which increases in quantity with age." Care should be taken by the microscopist not to confound a natural state with a pathological, or deem it pathological. Pigmentation, however, deserves more study than it has received. As an evidence of this we quote from Laycock: "Mind and Brain, vol. ii, p. 356—7: "*Pigment Deposits in Nerve Cells.*—The preceding descriptions mention the presence of pigment in nerve-cells. Several portions of the nerve-centers are remarkable for the amount of pigment-deposit in the cells which constitute them, and have received distinctive names in consequence, as the *locus niger* of the brain. No theory of this pigment-deposit has as yet been adduced sufficient to include all the facts. It is found in the nerve-centers of many of the lower invertebrates, as the Lumbricus; it is remarkably abundant in the *medulla spinalis* of the Amphioxus; it is also more present in the brain of the negro than of the white man. Its most uniform formation is in connection with the ganglionic expansion of the optic nerve in all animals with eyes. Now, it is very certain that pigment deposit in the brain and nervous system occurs in both acute and chronic diseases of the blood. *In certain forms of ague and in some chronic diseases, the deposit blocks up the capillaries of the cell layers and causes intense head symptoms.* (Planer, *Zeitsch. d. wiener Aertze*, 1854; Meckel, *Deutsche Clinik*, 1850, No. 50; Virchow, *Archiv. für Physiol, Bd. V.*) Of a like origin is probably the pigmentary retinitis observed by Graefe, Donders, and others, and which is characterized by pigment-deposit in the retina with obliteration of the blood-vessels. In his experimental researches on the nerves, Dr. Waller, commonly found degeneration of the nerve-fibril to terminate in pigment-deposit, and it is well-known to be a common occurrence in the bodies of old persons. In certain forms of melancholia, there is probably pigment-deposit in the brain. But these pathological facts are out of relation with the physiological phenomena. Besides, difference of temperament, as indicated by the difference in complexion—*i. e.*, in pigment-deposit in the hair and skin—is a well-known fact of experience. It is probable, therefore, that the deposit has some relation, as I have already surmised (833), to the dynamical functions of the nervous system"—this reference, 833, he makes is to the following language: "and it seems not improbable that the pigment-deposit in relation with the the optic nerve in all organisms, has in this respect the same relations to the sun's rays as the pigment-deposit in the skin of tropical races of men. And since it is a means of regulating force, it may perhaps be found that the pigment-deposit in certain portions of the nerve centres, (and which is seen in the brain of the negro), (Gubler found it more particularly with bulb and pons) has some relation to either the regulation of animal temperature or nervous force, or both. Be this as it may the optic nerve of man is so differentiated in respect to the perception of colors, that when we behold a red object, the retina pulsates at the rate of 480 billions of times between every two ticks of a common clock." (Last remark quoted from Nunneley, on the Organs of Vision, p. 39).

Dr. Meschede, *Virchow's Archives*, 1865 presents extended views upon the changes the cells undergo in general paralysis. He remarks that they increase in size, are more isolated, and are softened. He says: "We perceive cells exactly identified in size and form with the true nerve cell, but of which the nuclei are surrounded with a great quantity of globules of fat, very fine, which produce a strong refraction of light, and of numerous small grains of pigment, presenting a yellow color—these cells present contours clearly defined only in a part of their circumference; for the remainder their limit is established by the globules of fat that they enclose."

"Besides these forms, we encounter still others provided with a nucleus clearly visible and with contour intact, but filled with fatty granulations and little grains of pigment; and, on the other hand, cells having completely lost the perfectness of contour, appearing to be composed but of a certain number of small globules and of granulations grouped about a nucleus, revealing but by their form alone their character of nerve cells"—(Bonnet and P.)

Bonnet and Poincare say: "we share in the opinion of Magnan who thinks that the pigmentation and fat cells, pointed out by Meschede and Lockhart Clark, of themselves are of little importance and are encountered but rarely." Why these writers make this last remark I am unable to understand after examining further their work, and after the display of figures in their plates, unless this pathological condition in the brain is deemed of minor importance, their attention being absorbed in the vaso motor system. This fact seems to characterize too much the study of general paralysis, the selecting some one condition, giving it exclusive attention and ignoring all others.

Lockhart Clark, Westphal, and Magnan, have added to our knowledge of the disease infinitely more than those who have been engaged in a study of isolated phenomena which they do not find always present, and which are sought as a means of sustaining untenable views. These men have followed the study with the microscope. They do not limit their study to the brain. It is important that the whole nervous system should be studied. General paralysis is a disease of the whole nervous system, *i. e.* an arrest of vital power in it by which its nutrition is arrested, and as a result of which portions undergo various transformations, as inflammation, inflammatory and non-inflammatory softening, hardening, degeneration of blood-vessels, followed by effusion of blood, serum; apoplexy, and other effects of hemorrhage and pressure; or anæmia, as the case may be confined more to one portion of the nervous system than another. When limited to one portion as certain tracts in the cord it receives other names distinctive of local disturbance, as ataxia. By this we do not mean that ataxia and general paralysis are identical, but we mean that they are related as chorea and hysteria and various functional diseases are related. But how can you distinguish between the degenerations of general paralysis, in many cases, and those of ataxia further than that general paralysis often includes the more local trouble, or lesion, while ataxia is limited. But what limits it? What limits the lesion of general paralysis in one case to one part of the brain, while in another, brain cord, and sympathetic ganglia are all involved? In ataxia we do not have the mental disturbance of general paralysis, yet this does not prove the diseases are not related, for the intellectual centers not being involved we could not expect, except from sympathy, any other manifestation than that given.

We think this view of the relation is fully sustained by the observations of Clark, Magnan, and Westphal, who show that the posterior half of the spinal cord is implicated; and posterior part of the lateral columns, and posterior cornua of gray matter.

Virchow, Rokitansky, Salomon, of Malmo, and Westphal place much importance upon a hypertrophy of the connective tissue in the cortex and substance of the brain, and spinal cord. Bonnet continues this to the sympathetic ganglia. This proliferation they regard as a *cause* of the disease. It is an effect, and as such is but one of the many pathological conditions observed.

The increase of connective tissue is looked upon as the cause of the death of the cell. Each nerve fibre being surrounded by connective tissue the hypertrophied tissue crowds upon and strangles the cell by cutting off its fibre.

A change of structure very constant is that of an alteration of the walls of the blood vessels. Large and small vessels and capillaries may be affected both in their structures and upon their walls. Salomon held that the nature of general paralysis is a degeneration of the adventitious membrane of the vessels of the pia mater and of the cortex. He says: "this process of degeneration leads to alteration of the cells of the gray substance, reducing them to an inert mass."

The question of pathogenesis in general paralysis has not received the attention that has been given to some of the individual conditions that together make up the aggregate of the disease. Thus, we have in it thrombosis and embolism, atheromatous degeneration of vessels, aneurism of capillaries and arterioles, softening and sclerosis, any and all of which individually have received considerable attention from pathologists in the relation they sustain to the common forms of brain disease, but it does not enter the head of pathologists to study these conditions in a subject where so many of them can be found in the same brain. It is here the importance of a knowledge of the vaso motor nervous system is manifest. It is here the part it plays in congestion and anæmia deserve most attention, furnishing as it does all the supply of nervous power to those blood-vessels, to this is due the variety of alterations observed in the same brain. A paralyzed sympathetic gives rise to dilatation of the blood-vessel it supplies, while an irritated one gives rise to contraction, and the same cause operating at different points may produce both of these conditions. Do you desire to prove it? You do in every day life. You apply a mustard plaster to a surface. When the local irritation is sufficient the paralized capillaries admit more blood and the spot becomes red. You advise the patient to "leave it on until it reddens the skin." But what takes place at remote points? Apply it over the cerebro-spinal region, or put the feet in hot-water containing mustard, what follows? The blood-vessels within the cranium contract and unload the brain; or it may be you apply your plaster at other points to remove in like manner local congestions. Pathologically, a dilated blood-vessel may produce the changes manifest in general paralysis attributed to inflammation, or a contracted one the results due to anæmia, in short what may in the early stage be congestion may later be due to anæmia as we shall show. Thus the weakened vessel admits too much blood. There is increased heat, increased nutrition, local changes. This may eventually result in the yielding of the vessel wall, and, hence, an aneurism, then apoplexy, paralysis, or minor results. How is this brought about? The yielding wall which at first accelerates the circulation soon produces diminished velocity, stasis results—congestion, the walls of the vessels have thickened, then they soften, and as the stasis is increased they lose their character of elastic tubes. Irritation follows. This is communicated to surrounding structures. Around each vessel is a space, which normally the vessel does not fill, in other words, the canal that transmits the vessel is larger than the vessel, admitting expansion without pressure upon brain substance. Meynert says: "the vessels as a result of hyperæmia fill out this perivascular space so that the finest lymphatic vessels are obstructed." Lubimoff says: "at the point of bifurcation of vessels the walls are so altered that often their thickness is several times that of the calibre of the vessel." Meynert, and Rindfleisch regard this as the principle instrument in inducing the proliferation of connective tissue—the alteration, as we have said, running beyond the vessel into the connective tissue. Again, this pressure operates to produce this result in another way. The enlarged vessels cause a change in the circulation of the interstitial fluids, by which the cells of the connective tissue are distended, they then enlarge, the nuclei multiply by division, the cells divide, and new cells result. This tissue, as Westphall, Virchow and others have shown, then becomes an important factor in the alterations going on in the brain. The multiplying connective tissue forms a net work about the nerve fibrils, squeezes them tighter and tighter until strangulation results, the effect we have mentioned above. This cuts off the cell and from want of vital support it is absorbed, broken down, or undergoes fatty degeneration. When the nervous structure is removed in this way Sclerosis, or hardening results, whether in the brain, cord, or vaso motor ganglia.

The whole result then being dependent upon the vital state of the sympathetic, for upon it depends the blood-vessel and upon it the condition of surrounding parts. Hence we are able to understand that there will be different pathological results accordingly as a vessel may be obstructed, enlarged, altered, irritated, or contracted. Again, this proliferation may shut off the supply of blood from small vessels, and thus as it were this tissue strangle the trunk bearing it nutriment. Lockhart Clark describes holes in the brain substance where vessels should be found which have disappeared. These he found in both cortex and white substance where vessels destroyed had been absorbed.

But as we have said, the lesions are not found in the brain alone. Clark, Magnan, and Westphal believe the study of the cord as important as that of the brain, and we have added of the vaso motor ganglia. These observers describe lesions of the posterior half of the cord, and in posterior cornua of gray matter, to which we have referred. Jacobowitsch claimed to have discovered in this portion of the cord sympathetic nerve cells. Luys has demonstrated to the satisfaction of many, whether correct or not, "a continuous column of these cells extending along the inner face of the posterior cornua of gray matter in the cord, for its whole length up to the brain." (Dr. Jewell's lectures upon the *vaso motor nervous system*, vol. 1, *Chicago Journal, Nervous Disorders and Insanity*. To his view of Luys he adds of these cells: "My *opinion* is they do exist,") this raises another question concerning the vaso-motor system, and if true adds further to the evidence that it may be the seat of the original trouble in general paralysis.

But Westphal has shown that the alterations in the cord are not continuous with those of the brain, there is at the base of the brain a point beyond which they do not seem to pass, either from above or beneath.

Is this degeneration in the cord, and as we shall see further on, in the sympathetic ganglia, secondary to the brain disease? Clark, Magnan, and Westphal think not, for as we descend from above downwards it increases and is most developed in the dorsal region. Some think this due to pressure from exudation from the meninges. Westphal thinks the degeneration in the cord to be due to myelitis. Magnan says: "We can admit the idea of localized myelitis, or a secondary degeneration from loss of trophic action, but not that it is due to pressure from exudation." If due to pressure why are the posterior cornua diseased and not the anterior, and why the corresponding columns of the cord, and not the anterior? Why not the motor as well as co-ordinating function be abolished? Why ataxic symptoms instead of muscular atrophy?

(Continued.)

The Practitioner's Hand-book of Treatment; or The Principles of Therapeutics. By J. Milner Fothergill, M. D., Member of the Royal College of Physicians of London, etc. Philadelphia: Henry C. Lea. For sale by Robert Clarke & Co. Price $4 00

The author of this work is well known to the reading portion of the medical profession, through his frequent and valuable contributions to the British and American Medical Journals. Many of which have been rewritten and embodied in this volume. The first part of the work is taken up with a consideration of the subjects of assimilation and excretion, body heat and fever, inflammation and anæmia.

The application of remedies for various pathological conditions is eminently practical, and evinces a high degree of skill, sound judgment and tact on the part of the author. The chapters on "Public and private hygiene," and the medical man at the bed-side, are alone worth the price of the book.

WM. S. MERRELL & Co.—Some special notices from this house appear in this number, following our front cover, which are well worth attention; especially those concerning Podophyllin, Leptandrin, Pepsin and Nitrate of Sanguinaria. The letters on the subject of Fluid Extracts, and "Specific Remedies, will be read with much interest by many physicians. The Sugar Coated Pills manufactured by this firm have a high and well-deserved reputation.

The United States Pharmacopœia and the American Medical Association. By H. C. WOOD, M. D. This is a pamphlet of eleven pages, giving a resume of a controversy between Dr. S. Sqiubb, of Brooklyn, New York, and parties interested in "Wood and Bache's Dispensatory."

It may not be generally known to our readers, that the United States Pharmacopœia is controlled by a self-constituted national convention, which holds its decennial meetings at Washington city: The Pharmacopœia is thus subjected to revision every ten years, by a committee appointed for that purpose. The following is the first rule of the National Convention, and embodies the call for its next meeting.

"The President of This Convention shall, on the first day of May, 1879, issue a notice, requesting the several incorporated State Medical Societies, the incorporated Medical Colleges of Physicians and Surgeons, and the incorporated Colleges of Pharmacy throughout the United States, to elect a number of delegates not exceeding three, to attend a General Convention, to be held in Washington on the first Wednesday in May, 1880."

It is but just to state that this "National Convention" has not been sectional in its character, and that the members composing the body have included in their ranks such well-known and distinguished men as George B. Wood, Alfred B. Taylor, Edward Squibb, Franklin Bach, Joseph Carson, and numerous other names well-known, to the medical profession of the United States. It will be noticed that the call for the Convention is general in its character, delegates from medical societies and medical colleges in various sections of the country being allowed to participate in the proceedings. The subject of the Pharmacopœia has always however been referred to a special Committee on Revision, composed of experts in pharmaceutical matters. It has been sometimes intimated, in rather ambiguous terms that these "Committees on Revision" were really composed of men, who had some personal motive to subserve and that though these "National Conventions" seemingly allowed delegates from all the states to have a voice in their meetings, these delegates were only so many cats paws used to pull that coveted chestnut, the "United States Dispensatory" from the fires of an adverse criticism. In other words the "Committee on Revision," in reality constituted the "National Convention," and the title of delegate was merely complimentary, serving as an endorsement for a so-called "United States Pharmacopœia." In the meantime the copy-right of this Pharmacopœia was held in trust by the chairman of the "Committee on Revision." We repudiate the idea that the "Committee on Revision," would be guilty of such low flung trickery as has been insinuated. The high characters of the men composing the "Committee" utterly precludes such an idea. The very fact that this "Committee," refused any remuneration for their services in compiling the Pharmacopæia, giving the names of medical practitioners throughout the United States an opportunity to purchase a copy of the publication at about its cost price, is evidence enough that no *personal motives* influenced their action, and that what they did was for the good of science and the promotion of the interests of the entire medical profession of the Union. By contract with J. B. Lipincott & Co., the "United States Pharmacopœia," has been furnished to physicians at the retail price of one dollar a copy, or at wholesale for sixty cents per copy. Considering the value of the work could a lower price be asked?

It has been insinuated that the Pharmacopœia has been written in such a manner as to require an after elaboration by members composing the "Committee on Reviews." In other words that a *ring* existed in the aforesaid Committee which holding the copy-right of the "United States Pharmacopœia," were thus enabled to enjoy an entire monopoly of the "United States Dispensatory," edited and controlled by members of said Committee. It so happened that Wood & Bache the editors of the "United States Dispensatory," were members of the Committee on Review," in the year 1860. Such charges are grave in the extreme, in as much as they are probably false and libellous. The Pharmacopœia of the United States is public property, and Wood and Bache were fully entitled to embody its contents in the preparation of their "United States Dispensatory" the mere fact that they were members of the "Committee on Review" in the "National Convention," did not wave their right to make use of the Pharmacopœia. Indeed. the fact that the two gentlemen named helped compile the latter publication giving it the assistance of their valuable time and labor gratuitously, would only be a further indication to any fair-minded man, that they, even more than others, should be entitled to make copious extracts from the document.

The pecuniary success of the "United States Dispensatory," an innate feeling of jealously, straining a point for sweet charities-sake, a philanthropic utopian idea to benefit the medical profession at large by the gratuitous issue of a new United States Dispensatory, has induced certain parties to take up arms against Wood and Bache's valuable publication, and undertake the abolishment of the United States Pharmacopœia, substituting therefore a "National Dispensatory," to be issued under the auspices of the American Medical Association. The following call sounds the key note of the contemplated attack on Wood and Bache's time honored work. The following resolution will be presented at the next meeting of the American Medical Association, at its coming June session.

"PREAMBLE AND RESOLUTIONS.

"WHEREAS, The American Medical Association, as being the only organized body which represents the medical profession of the United States of America, may fairly claim the right to control all the general rights and interests of the profession not controlled by statute law; and,

"WHEREAS, 'The Pharmacopœia of the United States of America' is among the most important of such general rights and interests, and has not heretofore been under the direct control of this Association, but has been managed by a representative body similar to this, and for the most part embraced in this body, though representing only a small part of the medical profession; and,

"WHEREAS, This smaller body, known as the "National Convention for Revising the Pharmacopœia,' has given evidence that its plan of organization, though well adapted to the wants of the profession in the past, is insufficient for the growing necessities of the present and the future materia medica; therefore, be it

"*Resolved*, First, That the American Medical Association does, now and hereby, assume, the ownership of 'The Pharmacopœia of the United States of America,' and, as the superior representative body of the organized medical profession, does, now and hereby, relieve 'The National Convention for Revising the Pharmacopœia' from any farther acts of ownership, control, or management of the Pharmacopœia.

"*Resolved*, Second, That the Medical Societies and Colleges, which, in 1870, sent delegates to both this Association and the National Convention, do, through their delegates now present, relieve the officers of the National Convention from the duty of issuing a call for a convention in 1880, as provided for by the last convention; and that any society or college which does not desire to relieve the officers of the convention of 1870 from this duty, and does not desire that these conventions should now cease, be now heard through its delegates in this body; and, that a failure to oppose this resolution at this time shall be construed to signify acquiescence in its object.

"*Resolved*, Third, That the President of this Association notify the President of The National Convention, or his successor, of this action taken by this Association, and request him not to issue a call for a 'General Convention, to be held in Washington, on the first Wednesday in May, 1880,' as provided for by the General Convention of 1870, and ask him to make his decision in the matter known to the President of this Association. But, if the President of the National Convention, or his successor in office, should fail to reply, such failure shall be construed to mean acquiescence in this action.

"*Resolved*, Fourth, That 'The Pharmacopœia of the United States of America' be hereafter issued only by the authority of this Association; and that it be the only standard for the materia medica recognized by the medical profession of the United States of America."

This resolution has awakened alarm in the hearts of those interested in Wood and Bache's work. Dr. H. C. Wood, has rushed into print on the subject and the pamphlet under notice is intended to impress the medical public with the fact that the National Convention is the only body in the country competent to control or supervise pharmaceutical matters. Dr. Wood, denies the right of the "American Medical Association" to control the Pharmacopœia, or arrest the copy-right thereof from the hands of the National Convention. Dr. Wood is correct in denying the "American Medical Association" right to *control* the "Pharmacopœia," for, as before stated that publication is public property. The "American Medical Association," has a perfect right however to adopt the "Pharmacopœia," and issue a "National Dispensatory," should it see fit so to do. We trust however, that the members of the "American Medical Association," in the West and Southwest, will not burden themselves by undertaking such a task. The "Dispensatory" business is not a monopoly at present, for the field is open to any man in the United States. Those persons desiring to compete with Wood and Bache have only to write a better book, and the fact will soon be recognized by the medical public. In the meantime we cling to the private opinion that it is best to let well enough alone, and were we so fortunate as to own a portion of Wood and Bache's copy-right, we should not feel much alarm on account of the proposed attack. We sincerely hope that the delegates from this section of the country to the next Convention of the "American Medical Association" will promptly vote down the resolutions before quoted. The financial condition of the Association treasury is not such as to warrant the lavish expenditure of money in the preparation of a "National Dispensatory." The cost of such a publication would be many thousands of dollars, and we should have a bankrupt organization on our hands in a very short space of time.

T. C. M.

Virginia Medical Monthly. This extremely interesting Medical Journal has lately shown a considerable degree of enterprise, in publishing the "transactions of the Medical Society of Virginia." The January number, containing over 700 pages, includes in its columns, contribution from many of the ablest physicians of the "Old Dominion." The papers of Dr. J. W. Nablet, of the University of Virginia, on "Chemistry;" Dr. Fauntelroy, on "Advances in Therapeutics;" Dr. Cabell, on "Hygiene and Public Health," are far above the average of "State Society" essays. A biographical sketch of Dr. J. Marion Sims, late President of the "American Medical Association," together with an admirable steel plate engraving of the gentleman, are striking features of the January number. We congratulate Dr. Landon B. Edwards, not only on the fine appearance of his Journal, but also on the rare discrimination, tact and good taste, shown in the selection of articles for publication. The "Virginia Monthly," bids fair to become the leading medical periodical of the "South." T. C. M.

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The undersigned, having examined the products herein described, respectfully recommends the same to the United States Centennial Commission for Award, for the following reasons, namely:—

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F. A. GENTH.
(Signature of the Judge.)

Approval of Group of Judges.

J. LAWRENCE SMITH. DR. V. WAGNER.
P. DE WILDE. CHARLES A. JOY.
E. PATERNO. J. W. MALLET.
F. KUHLMAN.

Prof. M. L. Amick of the Cincinnati College of Medicine and Surgery has had printed a very convenient chart, of the cranial nerves, giving their classification, name, history, origin, foramen of exit, distribution and function.

CINCINNATI MEDICAL SOCIETY.

Society met December 5th, Dr. Murphy presiding. Minutes of previous meeting read and approved.

Dr. Murphy reported the following case. He was called last Thursday to see a lady, age 58, who had been suddenly seized with what she termed blindness. She observed her vision becoming blurred in the beginning, and then entire blurring in the left half of the field of vision. Then there would appear to be globes of light of various colors floating before the eyes. This condition of vision, especially the hemiopia, has persisted to the present time. There is no acceleration of pulse or elevation of temperature No paresis or impairment of intellect. Slight headache, pupils normal.

The lady had a similar attack last September, but it was of short duration. She has suffered with palpitation of the heart and different physicians have pronounced that she has an inorganic and organic trouble. He has not yet examined her heart, or made an ophthalmoscopic examination. She has slight dyspeptic symptoms, otherwise appears to be in fine health. There is no hysterical manifestations.

Dr. Hough said that in regard to cases of temporary hemiopia, he happened to have a close personal interest, having had since the age of 15 or 16 years as many as fifty attacks or perhaps more. He regarded the ailment in his own case as trivial and altogether sympathetic with gastric derangement. His attacks had varied in duration from about 15 minutes to several hours. His last attack was during the last meeting of the Alumni of the Miami Medical College at the house of Prof. Cilley and lasted about twenty minutes. In his case the hemiopia is always lateral, sometimes the right and sometimes the left of the field of vision being obscured. In almost every case both eyes are affected about equally. In a very few cases the dimness of vision has been monocular. In no case has the upper or lower half only of the field of vision been obscured. In all cases the dimness of vision extends over rather more than half the field. It is very seldom that any cephalagia or other pain attends these attacks. He never suspends business unless engaged upon something requiring close application of vision. Treatment has not been resorted to except in a few cases in which attacks have recurred frequently, when attention to a slight gastric disturbance appeared to stop the disease at once.

He thought that cases of this kind ought to be considered in connection with others quite recently discussed here, wherein no organic lesions could be found. He did not think that because no "coarse lesions" could be found that therefore no physical lesion existed. He was not disposed to believe in purely "functional diseases" as being what they are generally regarded; but rather that in those cases where no "coarse lesion" can be found there is a lesion that we may call molecular; a *molecular lesion;* a lesion upon which is to rest a *molecular pathology* that we are yet to have, that we *must* have before medicine can take its rank among the physical sciences. It is not difficult to see that this view is in accord with all the known facts and analogies of physics and chemisty. At this day no scientist can afford to disregard the laws and deductions of molecular dynamics; and bearing directly upon such cases as the one under discussion are to be found a number of well-known facts. For example, a man may experience the *sensa-*

tion of increased warmth when there is *no increase of temperature*, or, he may *feel* an increasing sense of chilliness, or coldness even during an increase of temperature. Again, we may have vivid sensation of light or color while placed in perfect darkness. In such cases it seems necessary, to believe that the sensations are nothing more nor less than molecular motions, and *any* force that is capable of producing these motions is capable of producing the sensations because the latter and those peculiar molecular motions are one and the same thing. The sensorium, wherever and whatever that may be, is the tablet whereon is written by means of molecular motions that mysterious experience that we call sensation. This was his belief and it was an opinion based upon known physical laws and analogies. Whatever forces are capable of producing the same kind of molecular motions that heat produces at the sensorium, are capable of exciting the sensation of warmth. Whatever forces are capable of producing the same molecular motions that light or color produces, are also capable of exciting sense of light or color whether the subject be in light or darkness. Whatever can destroy or disturb the molecular motions that constitute the sensation of vision can destroy or disturb vision no matter how perfect the eye, or how intense the light given off by an otherwise visible body may be.

It seems altogether reasonable to believe that in all cases of so-called "functional disease" where no organic lesion can be detected, there are *molecular lesions* that the most powerful microscope is totally incapable of showing, and that we must therefore study by their effects as we do other molecular changes. It is only in this way that we shall ever establish the true correlation of the physical *and* vital forces. This will be done only after we have established *Molecular Pathology*.

Dr. Comegys said as the loss of vision was in the left half of the field of vision, the trouble is very probably in the tubercula quadrigemina; because these serve as the optic centers of the inner half of the retina of the left eye, and the outer half of the retina of the right eye, and as the hemiopia is transitory the lesion is functional and not organic. It is due I think to disturbance in the blood supply to the capillaries of these optic centers and will disappear undor tonic remedies.

Dr. Comegys believed that our sensations were associated with molecular states; and alterations of polarity, so to speak, of the molecular gray nervous matter explains varied sensations. We have subjective sensations of heat and light, also of smell, taste, audation and touch; thus the perception of these sensations established by impressions on the periphery of nerves of special sense is just as real when due to molecular movements and unconnected with the peripheral nerve tracts.

In regard to molecular pathology speaking broadly. I think we must admit it is the *unique* pathology that there can be no other kind; for there can be no disease unless the molecular structures are involved, sometimes recoverably, sometimes not. It is, in short, in this molecular domain that all the chemico-vital actions take place; it is the realm of pathology as well as the area of physiology. Moreover the molecular structures all lie in the intercapillary space, and their vital play depends upon the momentary blood supply. It seems to me the protection of the capillary circulation is the true aim of the physician; and he should continually seek to know and employ those remedies that regulate the volumen momentum and equalibrium of the blood supply in the capillary vessels.

Correspondence.

Milk Sickness.

Kenton, O., March 9th, '77.

EDITOR LANCET AND OBSERVER,

DEAR SIR:

In the February number of your Journal is an article on milk sickness, its causes and treatment, by W. H. Philips, M. D. And in that article, making out milk sickness a malarial fever, and quoting many late German medical authors on the cause of malaria, of which they of course know nothing; we know the effects of malaria, but don't know what it is. And all this fine quoting of German authors to prove milk sickness of a malarial origin is all mistake. We now, Mr. Editor, intend to prove to your readers that milk sickness is not a malarial poison. As we understand, malaria produces our intermittent fevers, and which are the same all over the world where intermittent fevers prevail. 1st, then, cows, horses, sheep, etc., get this disease, and only on certain places at that; cows giving milk don't show the disease at all, but their calves have it all the time, as long as they suck the milk; dogs fed on milk get it. I have experimented often in the last ten years and found that the poison is in the cream and butter. I had calves to be given skimmed milk, without result; fed dogs on skimmed milk, no result; then had the same calves to suck the milk from the cow and they soon had the disease; gave the dog the same milk and he soon had it. Mr. Editor, does this look or act like malarial disease or as a special poison. And now we will show as to its effects on the human family, and prove to any one beyond a doubt of a special poison, and that poison is in the butter and cream.

1st case: October 20th, Mrs. B. age 34; has lived here in Kenton for the last ten years: has a relation two miles west of town where they get their butter. Where in the month of August, I had two cases of milk sickness, Mrs. F. and Mr. F. Their calves had it so bad that they could scarcely stand up long enough to suck their milk; the cows looked well and to all appearances were well; all the poison passing into the milk. In this case Mrs. B. had the disease for ten days. October 30th, she had had complete obstruction of the bowels for five days.

2nd case: Mrs. A. and daughter, here in town, get their butter about five miles east of town. I there treated two cases of the disease on September 20th, 1874. Mrs. A. and daughter had the disease here in town on October 4th, 1874. Two bad cases; bowels did not move until the 7th day for Mrs. A., and in the daughter, aged 8 years, they did not move from October 4th, until October 12th; so any one not familiar with this disease, physicians in the city, would call it something else of course. All the obstruction of bowels in the city, generally are milk sick patients, as the poison is in the butter as certain as anything can be proved.

3rd case: whole family here in town got their butter at the farm of the 1st case about the same time; the family consisted of four, and all four had it. And at the farm of the first case I made another test. I had them sell their cows, use no more butter and milk, and now, since three years, have been as well as could be. To make proof still better, she, the same woman on this farm, could not resist, so last June she again used butter, and only herself, and at the end of June, I attended on her for milk sickness, and the most obstinate case I ever had yet.

I examined the blood and urine of cases and found nothing in it except what would naturally be there, but I was careful to not let bacteria get into the blood or the urine. I have in ten years, now, paid particular attention to this subject and I am certain, that if the physician's attention was drawn to it in your large cities, and if every obstruction of bowels, with vomiting, was closely watched, would not be put on the register as inflammation of the bowels or obstruction of the bowels; for I am certain you often see it, but it goes for something else. These are the facts of the case and what I write here is of my own observation. It is now over fifteen years since I commenced to observe and have often thought about, why it was that some one did not draw the attention to, and make observations in the cities. Look for it in the fall and even winter, as I have had cases, two or three, here in January 1871 and 1873.

And I am certain if physicians in your city were on the lookout for it you will find it plenty, as you get the butter from here and elsewhere.

I ask any honest physician for his opinion on this: does or did any one ever hear of a malarial fever being transferred in the butter? I think not; it is a poison eaten by cows, sheep, etc., and the poison passing into the milk and like all vegetable poisons, shows its preference for the oil globules of milk, and so is transferred to the cream and butter. And as to the treatment of this disease: I have ice to be taken in the mouth for the thirst, for every thing else is vomited up, whiskey or brandy as much as the patient wants, calomel in five to ten gr. doses four times in twenty-four hours. This is all the treatment I use or have used for the last ten years, and never lost a patient in the ten years of milk sickness. I had in that time about twenty-five cases and all of them are in perfect health to this day. Quinine is not wanted in this disease; and all malarial diseases need it and must have it in order to a cure.

Truly yours,

C. H. SCHMIDT, M. D.

Obituary.

DR. THOMAS WRIGHT.

Died, February 27th 1877, at his residence near Reading, Hamilton County, Ohio Dr. Thomas Wright, aged 80 years.

Dr. Wright was born in Tyrone County, Ireland, in March 1797.

The youngest child of his father's family, he was at an early age set apart for his profession. Possessed of a finely developed mind and good constitution, he made rapid progress in his literary education, and was fitted when a mere boy to enter upon his Collegiate course, and was at the time of his entering Glasgow University in 1814 the youngest student there.

After his first course, he was appointed assistant to Dr. Cropier in a dispensary representing three counties, namely, Tyrone, Armach and Monahan. After remaining in that position two years, he took a second course of medical lectures, in the same school in the winter of 1817—1818.

Having finished, with honor, his collegiate course, and while awaiting an appointment as surgeon in the British Army, which had been promised him, he decided to come to America. He took passage as a Physician and Surgeon in the ship in which he sailed, landing in Canada in 1820. He shortly afterwards went to Vermont, and engaged in the practice of his profession, with Dr. Samuel Huntington of Craftsburg, whose daughter he subsequently married. In 1823 he removed to Reading, Hamilton Co., Ohio. His ability as a physician was quickly recognized by the professional fraternity and strong inducements were offered him from time to time, to establish himself in Cincinnati.

These he steadily declined as being more circumscribed and less congenial to his tastes and habits. He chose for his home the country near the city and controlled the patronage of an extensive territory.

He was the contemporary of Professors Mussey, Eberle, Drake and Harrison with whom he maintained terms of personal friendship and intercourse up to the time of their several deaths. He seemed intuitively to discern the most hidden diseases, was a fine surgeon and eminently successful in every branch of his profession.

In every sphere of life, as well as in his profession, he was a strictly honest and upright man, never discriminating in favor of the rich at the expense of the poor.

He retired from his heavy practice in 1848, but the Cholera breaking out in 1849, he resumed the field again and performed great and valuable service.

In 1854 and 1855, he represented this county in the State Legislature, and although afterwards proffered political places of honor, he declined them, prefering his profession to any other pursuit. To all of his brother physicians, in whom he could recognize merit and ability, he always extended a sympathizing hand.

Honest and upright in all his business transactions, and frugal in habits of living, he was liberal in his benefactions to the unfortunate and helpless. In his early married life, he made a profession of religion, and attaching himself, as a member to the Christian Church, he never faltered in his duty to God and man, and his last hours were those of happiness and peace, in the hope of a glorious immortality.

He raised and liberally educated seven children, six of whom survive him. One of his sons Thos. Wright Jr., chose his father's profession, and is now a prominent physician in Bellfontaine this state. His wife died in 1867. His European diploma and testimonials were lost in the flood of 1832, together with many books and other valuables while stored in Cincinnati.

He practiced his profession to the end of his life, and was probably then the oldest practicing physician in Ohio.

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J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

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Original Communications.

Article 1.—Notes on the Epidemiology of Ohio. Topography, Area, Population, Geology, Surface, Drainage, Altitude and Climatology of the different Counties in Ohio.

By THOMAS C. MINOR, M. D., Cincinnati, Ohio.

SECTION 2ND.*

Ashtabula County.—Bounded on the north by Lake Erie, on the east by the State of Pennsylvania; on the south by Trumbull county; on the west by Lake and Geauga counties. Population, 1870, 32,517. Geology. Northern portion, Devonian System (Erie Shales); southern half, Carboniferous (Waverly Group)—Soil fertile—Natural Drainage.

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* In the preparation of Sections 1st and 2nd of this article, the following works have been consulted: The "Topographical Atlas of Ohio," containing the papers of Chas. Whittlesey, on the Topography and History of the State; Edward D. Mansfield, on Canals, Turnpikes and Railways: Lorin Blodget, on the Climatology of Ohio; John H. Klippart, on the Agricultural Interests of Ohio, and of J. S. Newberry on the Geology of Ohio. Eighty-eight county maps, etc. "Agricultural Reports of Ohio." "Geological Reports of Ohio," containing articles relating to the Geology and topography of Ohio, by numerous observers. Reports of Rail Road Surveys in different portions of the State. Toner's "Dictionary of Altitudes." Von Steinwehr's "Centennial Gazetteer," including articles relative to the Topography, Climatology, Hydrography and artificial drainage of the State. "Blodget's, Climatology of the United States." Drake's articles on the Topography of

Eastern portion of County,	-	Conneaut Creek.
Central " "	-	Ashtabula River.
Western " "	- -	Grand River.

Surface of county generally level. The following are the Altitudes above the sea level of various points within the county limits. Austinburg, 816 feet; Kingsdale, 647; Saybrook, 650; Geneva, 659; Harpersfield, 675.

Climatology. — Jan., 22.33°; Feb., 26.33; March, 30.33; April, 43.67; May, 56.06; June, 67.01; July, 72.55; Aug., 69.75; Sept., 64.67; Oct., 50.11; Nov., 58.57; Dec., 34.20. Saybrook.—Jan., 21.32°; Feb., 26.87; March, 33.90; April, 47.73; May, 55.75; June, 67.18; July, 69.36; Aug., 68.69; Sept., 63.93; Oct., 48.44; Nov., 40.01; Dec., 31.50 (for mean annual and quarterly statements, see tables). Average rainfall during the year 32 inches.

Ashland County.—Bounded on the north by Lorain and Huron counties; on the east by Medina and Wayne; on the south by Holmes and Knox; on the west by Richland county—Area, 300 square miles. Population, 21,933. Geology. Carboniferous System (Waverly Group). Soil rich. Natural Drainage. Lucas Fork Creek. The southern portion of the county is hilly, the rest a rolling country.

Altitude of points in county. Ruggles, 1100 feet above sea level; Savannah, 1098; Londonville, 965; Polk, 1232.

Climatology.—Jan., 25.17°; Feb., 28.54; March, 35.94; April, 48.60; May, 59.29; June, 68.41; July, 73.88; Aug., 71.22; Sept., 64.38; Oct., 51.23; Nov., 38.22; Dec., 29.72; (for yearly and quarterly statements, see tables). Annual rainfall in northern portion of county 36 inches; in southern portion 40 inches.

Allen County.—Bounded on the north by Putnam county; on the east by Hancock and Hardin; on the south by Auglaize; on the west by Van Wert county. Area 405 square miles. Population 26,623. Geology. Silurian System (Water Lime and Salina). Soil

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Ohio, and Climate of the United States. Francis Walker's "Statistical Atlas of the United States," containing Geological, Climatological, Hypsometric and Hyetal Charts. Statistics regarding population, "United States Census," 1850—1860—1870, the latter including Hypsometric, Hyetal, and Climatological Charts, etc. The writer has endeavored to gather from this mass of material a condensed statement regarding the points named. Discrepancies exist in the remarks made by many of the writers regarding the topographical features of various counties; so far as it was possible, these have been adjusted. The medical reader noticing any errors in reference to his own county, is asked to correct the same. In those counties where climatological observations are partially or wholly wanting, physicians are solicited to commence meteorological observations at once and forward the same to the Smithsonian Institute, at Washington City.

fertile. Natural Drainage. Auglaize and Ottawa Rivers. Surface mostly level. Altitude of points in county. Lima, 872 feet; Elida, 791. Climatology — (Observations wanting). Average rainfall for year 40 inches.

Adams County.—Bounded on the north by Highland and Pike counties; on the east by Scioto; on the south by the Ohio River and State of Kentucky; on the west by Brown county. Area 500 square miles. Population, 20,750. Geology. Eastern portion Devonian System (Huron Shale); central and western portion, Silurian (Clinton, Niagara and Cincinnati groups). Soil fertile, surface of country rolling. Natural Drainage. Brush creek and its tributaries. Altitude of points in the county. Prospect Hill, 700 feet; Tiffin, 737 feet; West Union, 975.

Climatology.—Prospect Hill; Jan., 36.18°; Feb., 35.60; March, 44.16; April, 51.16; May, 61.01; June, 72.69; July, 72.85; Aug., 73.57; Sept., 64.74; Oct., 52.26; Nov., 46.65; Dec., 35.70.

Annual rainfall in northern, central and eastern portion of county 44 inches; in southwestern part 46 inches.

Athens County.—Bounded on the north by Morgan and Perry counties; on the east by Washington; on the south by Meigs; on the west by Hocking, and Vinton counties. Area, 430 square miles. Population, 23,768. Geology. Carboniferous System (Coal Measures). Soil fertile, surface hilly. Natural Drainage. Hocking river and its tributaries. Altitude of points in county. Athens 750 feet.

Climatology.—Athens; Jan., 23.62°; Feb., 34.00; March, 43.95; April, 50.37; May, 64.29; June, 71.61; July, 75.71; Aug., 71.74; Sept., 64.69; Oct., 55.18; Nov., 40.79; Dec., 30.33.

(For mean annual and quarterly statements refer to tables).

Annual rainfall, western and southern portion 42 inches; northeastern part 40 inches.

Auglaize County.—Bounded on the north by Allen county; on the east by Hardin and Logan; on the west by Mercer county. Area, 399 square miles. Population, 20,041. Geology. Silurian System. (Water Lime and Salina at northern portion, Niagara Group at southern portion of county). Natural Drainage. Auglaize and Saint Maries' Rivers. Artificial Drainage. Miami and Erie Canal. Soil fertile, surface even and almost level. Altitudes of points in the county. St. Maries, 943 feet; Wapakonetta, 883;

Minster, 815; Cridensville, 879; Bremen, 841. Climatology, (observations wanting), annual rainfall 42 inches.

Belmont County.—Bounded on the north by Jefferson and Harrison counties; on the east by the Ohio River and State of Pennsylvania; on the south by Monroe; on the west by Guernsey and Noble counties. Area, 525 square miles. Population, 39,712. Geology. Carboniferous System (Coal Measures). Natural Drainage. Indian, Wheeling and Captina Creeks drain most of the county; the northeastern portion however, is drained by Big Still Water Creek, an affluent of the Tuscarawas River. Soil passably productive, surface high and hilly. Altitudes of points in county. Saint Clairsville, 600 feet; Burton, 1160; Martin, 597; Wheeling, 620 feet.

Climatology.—St. Clairsville; Jan., 30.77°; Feb., 30.91; March, 38.27; April, 40.39; May, 50.30; June, 59.43; July, 72.54; Aug. 71.77; Sept., 57.38; Oct. 45.31; Nov., 42.40; Dec., 28.01; annual rainfall; eastern portion 36 inches, western part 40 inches.

Brown County.—Bounded on the north by Highland and Clinton counties; on the east by Adams; on the south by the Ohio River and State of Kentucky; on the west by Clermont county. Area, 502 square miles. Population, 30,802. Geology. Silurian System (Cincinnati Group, Trenton and Hudson). Natural Drainage. East Fork of Little Miami; White Oak Creek; Straight Creek and Eagle Creek. Surface undulating, and near the Ohio River very hilly; soil fertile. Altitudes of points in county. Maples, 796 feet; Ripley, 574.

Climatology.—Ripley; Jan., 35.16°; Feb., 35.62; March, 43.38; April, 56.76; May, 63.77; June, 73.28; July, 76.83; Aug., 74.54; Sept., 64.22; Oct., 54.92; Nov., 42.51; Dec., 34.87. (For mean annual and quarterly statements, see tables); annual rainfall 46 inches.

Butler County.—Bounded on the north by Preble and Montgomery counties; on the east by Warren; on the south by Hamilton county; on the west by the State of Indiana. Area, 450 square miles. Population, 38,912. Geology. Silurian System (Cincinnati Group, Trenton and Hudson). Natural Drainage. Big Miami River, White Water River, Elk Creek and Four Mile Creek. The surface is generally level, soil fertile. Altitudes of points in the county. College Corner, 985 feet; Hamilton, 592;

Jacksonburg, 1152; Trenton, 650; Middletown, 647; Oxford, 950.

Climatology.—Jacksonburg; Jan., 33,36°; Feb., 32.90; March, 35.54; April, 51.76; May, 61.29; June, 69.49; July, 77.02; Aug., 74.62; Sept., 66.45; Oct., 51.85; Nov., 41.31; Dec., 29.69. Oxford; Jan., 26.36; Feb., 31.40; March, 38.33; April, 50.67; May, 60.67; June, 71.44; July, 76.24; Aug., 73.41; Sept., 66.58; Oct., 51.32; Nov., 40.53; Dec., 29.24. (For mean annual and quarterly statement, see tables.) Annual rainfall 46 inches.

Carroll County.—Bounded on the north by Stark and Columbiana counties; on the east of Jefferson; on the south by Harrison; on the west by Tuscarawas county. Area, 420 square miles. Population, 14,491; Geology. Carboniferous System (Coal Measures); natural drainage, Conotten River, Sandy and Yellow Creeks. Surface undulating; soil passably fertile. Altitudes of points in the county. Malvern, 987 feet; Oneida, 1004; Climatology (Observations wanting); average annual rainfall 40 inches.

Champaign County.—Bounded on the north by Logan County; on the east by Union and Madison; on the South by Clark; on the west of Shelby and Miami counties. Area, 345 square miles. Population, 24.188; Geology. Silurian System, eastern portion of county, (Water Lime and Salina); western portion (Niagara Group). Natural drainage. Mad River and its affluents; northwestern surface of county flat; southeastern surface, rolling country. Soil exceedingly rich. Altitudes of points in the county. Kingston, 693 feet; Urbana (University) 1015; Mingo Station, 659.

Climatology. —Urbana; Jan., 25.75°; Feb., 29.26; March, 37.13; April, 49.79; May, 61.29; June, 69.55; July, 74.14; Aug., 71.10; Sept., 64.58; Oct., 50.79; Nov., 39.56; Dec., 30.14. (For annual mean and quarterly statement, see table). Annual rainfall, 42 inches.

Clarke County.—Bounded on the north by Champaign County; on the east by Madison; on the south by Greene; on the west by Miami county. Area, 330 square miles. Population, 32,070. Geology. Silurian System; eastern portion (Niagara group); Western portion (Clinton and Cincinnati group). Natural Drainage. Eastern part by Little Miami River; western and central part by Mad River. Surface of country hilly; soil very fertile.

Altitude of points in the county. Enon, 858 feet; Snyders, 876; Springfield, 956. Climatology (observations wanting). Annual rainfall, 42 inches.

Clermont County.—Bounded on the north by Warren county; on the east by Brown; on the south by the Ohio River and State of Kentucky; on the west by Hamilton county. Area, 440 square miles. Population, 34,268. Geology. Silurian System (Cincinnati Group—Trenton and Hudson). Natural Drainage. East Fork of Little Miami and its numerous affluents. The surface is hilly and averages more than 800 feet above tide water. Soil quite fertile. Altitnde of points in the county. Bethel, 555 feet; Pleasant Plains, 950; Franklin 960; Loveland, 1020.

Climatology.—Bethel; Jan., 26.89; Feb., 32.50; March, 38.27; April, 50.77; May, 59.18; June, 69.25; July, 74.14; Aug., 70.48; Sept., 63.36; Oct., 49.23; Nov., 39.76; Dec., 30.55. (For mean annual and quarterly statement, see table). Average annual rainfall, 46 inches.

Clinton County.—Bounded on the north by Greene county; on the east by Fayette and Highland; on the south by Highland and Brown; on the west by Warren county. Area, 375 square miles. Population, 21,914. Geology. Silurian System. Eastern portion (Niagara Group); western portion (Cincinnati and Clinton Group). Natural Drainage. East Fork of Little Miami River; Todds Creek, Anderson and Rattlesnake Creeks. Surface hilly; soil exceedingly fertile. Altitude of points in the county. Wilmington, 1053 feet; Martinsville, 662. Climatology (observations wanting). Annual rainfall, 44 inches.

Columbiana County.—Bounded on the north by Mahoning county; on the east by State of Pennsylvania; on the south by Jefferson and Carroll; on the west by Stark county. Area, 500 square miles. Population, 38,299. Geology. Carboniferous System (Coal Measures). Natural Drainage. Little River, Yellow and Sandy Creeks, affluents of the Ohio River. Surface hilly; soil fertile. Altitudes of points in the county. Bucksyille, 800 feet; Elk Run, 1152; Leetonia, 1004; Salem, 950; Bayard, 1065; New Salisbury, 745; Tegarden, 1071; Wellsville, 677; East Fairfield, 1152; New Lisbon, 961; Round Knob, 1409; Yellow Creek Hills, 1245; Hanoverton Summit, 1199.

Climatology.—New Lisbon; Jan., 26.20°; Feb., 29.45; March, 35.76; April., 48.93; May, 59.70; June, 69.92; July, 74.55; Aug., 71.04: Sept., 63.58; Oct., 50.51; Nov., 40.31; Dec., 31.08. East Fairfield; Jan., 25.45; Feb., 29.94; March, 35.06; April, 48.73; May, 56,99; June, 66.50; July, 70.35; Aug., 68.97; Sept., 62.59; Oct., 49.67; Nov., 40.18; Dec., 29.89. (For mean annual and quarterly statement, see tables). Annual rainfall, 38 inches.

Coshocton County.—Bounded on the north by Holmes county; on the east by Tuscarawas; on the south by Guernsey and Muskingum; on the west by Knox county. Area, 550 square miles. Population, 23,600. Geology. Carboniferous System (Coal Measures). Natural Drainage. Tuscarawas River, Walhonding River, Muskingum River, Killbuck and Mill Creeks. Artificial Drainage. Ohio and Erie Canal. Surface hilly, soil fertile. Altitude of points in the county. Coshocton, 765; New Bedford, 876; New Castle, 1315; Wills Creek, 1100; Conesville, 730; Walhonding, 762; Yankeetown, 700; Keene, 1000.

Climatology.—Keene; Jan., 28.97°; Feb., 34.17; March; 40.40; April, 48.41; May, 60.77; June, 69.89; July, 74.38; Aug., 72.42; Sept. 66.06; Oct., 51.06; Nov., 43.62; Dec.,; 29.84. (For mean annual and quarterly statement, see tables). Annual rainfall in county, 40 inches.

Crawford County.—Bounded on the north by Seneca and Huron counties; on the east by Richland; on the south by Monroe and Marion; on the West by Wyandot County. Area, 420 square miles. Population, 25,556. Geology. Devonian System; eastern portion of county (Huron Shale); western portion (Hamilton Group, and Corniferous Limestone). Natural Drainage. Little Scioto and Whetstone Rivers. Surface generally level; soil productive. Altitude of points in the county. Crestline, 1265; Gallion, 1155; Robinson, 1066, Climatology (observations tions wanting). Average rainfall in northern portion of county, 36 inches; in southern portion 40 inches.

Cuyahoga County.—Bounded on the north by Lake Erie; on the east by Geauga county; on the south by Summit and Medina; on the west by Lorain county. Area, 430 square miles. Population, 132,010. Geology. Northern third, Devonian System (Erie Shales, Portage and Chemung). Central and southwestern section, Carboniferous System (Waverly Group); southeastern corner (Carboniferous Conglomerate). Natural drainage. Chagrin River on the east; Cuyahoga River. the center; Rock River, the west. Surface for the most part level. Soil passably fertile. Altitude of points in the county. Berea, 741 feet; Brecksville, 800; Chagrin Falls, 1082; Euclid, 623; Newburg, 800; Ohnstead, 773; Cleveland, 643; East Cleveland, 683; Rockport; 665.

Climatology.—Cleveland; Jan., 25.94°; Feb., 28.31; March, 34.85; April, 47.03; May, 56.96; June, 67.94; July, 71.73; Aug., 69.36; Sept., 63.08; Oct., 51.35; Nov., 40.58; Dec., 30.72. East Cleveland; Jan., 27.71; Feb., 28.67; March, 34.89; April, 48.00; May, 53.45; June, 63.41; July, 67.13; Aug., 66.44; Sept., 61.95; Oct., 48.02; Nov., 37.81; Dec., 32.05. Rockport; Jan., 32.26; Feb., 34.01; March, 41.08; April, 50.34; May, 62.27; June, 67.28; July, 72.98; Aug., 72.45; Sept., 64.39; Oct., 53.95; Nov., 44.04; Dec., 34.87. (For annual mean and quarterly statement, see tables). Annual average rainfall in county; southern portion, 34 inches; northern portion, along Lake Shore, 32 inches.

Darke County.—Bounded on the north by Mercer county; on the east by Shelby and Miami; on the south by Preble; on the west by the State of Indiana. Area, 610 square miles. Population, 32,278. Geology. Silurian System (Niagara Group). Natural Drainage. Stillwater, Franklin, and Greenville Creeks. Surface generally high and level; soil fertile. Altitude of points in county. Arcanum, 1080 feet; Greenville, 1033; Versailles, 1065; Rush River Station, 667; Greenville, 1045; Climatology (observations wanting). Annual rainfall in county, 42 inches.

Defiance County.—Bounded on the north by Williams County; on the east by Henry; on the south by Paulding; on the west by the State of Indiana. Area, 420 square miles. Population, 15,719. Geology. Devonian System (Huron Shale), Genessee and Portage). Natural Drainage. Maumee, Auglaize, St. Josephs and Tiffin Rivers. Surface usually flat, soil fertile. Altitude of points in the county, Defiance, 711 feet. Climatology (observations wanting). Annual rainfall, 40 inches.

Delaware County.—Bounded on the north by Marion and Morrow counties; on the east by Knox and Licking; on the south by Franklin; on the west by Union County. Area, 500 square miles; Population, 25,157. Geology. Devonian System, eastern portion

(Huron Shale, Genessee and Portage); western portion (Hamilton Group and Corniferous Limestone). Natural Drainage. Scioto and Olentangy Rivers. Surface rolling, soil passably fertile. Altitude of points in county. Morton, 1200 feet; Ashley, 972; Delaware 970; Eden, 959; Lewis Centre, 927. Climatology (observations wanting). Annual rainfall, 40 inches.

Erie County.—Bounded on the north by Lake Erie; on the east by Lorain county; on the south by Huron; on the west by Sandusky county. Area, 250 square miles. Population, 28,188. Geology. Northern, western and southwestern portion, Devonian System, Erie Shales, Huron Shales, (Hamilton Group and Corniferous Limestone. Southeastern portion, Carboniferous System (Waverly Group). Natural Drainage. Huron and Vermillion Rivers. Surface flat, soil very fertile. Altitude of points in the County. (Kelleys Island near Northwest shore of county on Lake Erie), 587, feet; Venice, 566; Vermillion, 940; Margaretta, 850.

Climatology. — Kelley's Island; Jan., 26.60°; Feb., 28.71; March, 33.69; April, 45.33; May, 57.37; June, 68.21; July, 73.56; Aug., 72.22; Sept., 65.22; Oct., 52.76; Nov., 41.73; Dec., 30.26. Margaretta; Jan., 27.54°; Feb., 27.67; March, 33.43; April, 46.89; May, 58.88; June, 68.37; July, 75.28; Aug., 71.81; Sept., 64.18; Oct., 49.61; Nov., 39.35; Dec., 29.63. (For mean annual and quarterly statements, see tables). Annual rainfall in county, 34 inches.

Fairfield County.—Bounded on the north by Licking county; on the east by Perry; on the south by Hocking; on the west by Franklin and Pickaway counties. Area, 500 square miles. Population, 31,138. Geology. Carboniferous System (Waverly Group, Carboniferous Conglomerate, and lower Carboniferous Limestone). Natural Drainage. Poplar, Putnam, Little Walnut, and Muddy Prairie Creeks. Artificial Drainage, Ohio and Hocking Canals. Surface rolling; soil fertile. Altitude of points in the county, Lancaster, 889 feet. Climatology (observations wanting.) Rainfall, northeastern portion, 40 inches; southwestern portion, 42 inches.

Fayette County.—Bounded on the north by Madison county; on the east by Pickaway and Ross; on the south by Highland; on the west by Greene and Clinton counties. Area, 450 square miles. Population 17,170. Geology. Silurian System (Water Lime and Salina Niagara Group). Natural Drainage. Sugar and Paine Creeks; surface rolling, soil passably fertile. Altitude of points in the county. Perry, 682 feet. Climatology (observations wanting). Average annual rainfall, 42 inches.

Franklin County.—Bounded on the north by Delaware county; on the east by Licking and Fairfield; on the south by Pickaway; on the west by Madison county. Area, 530 square miles. Population, 63,019. Geology. Devonian System (Huron Shale, Hamilton Group, Corniferous Limestone). Natural Drainage. Sciota River. Surface generally flat, soil fertile. Altitude of points in county, Georgeville, 803 feet; Westerville, 860; Columbus, 834;

Climatology.—Westerville, Jan., 28.70°; Feb., 31.31; March, 38.77; April, 50.84; May, 60.37; June, 68.89; July, 73.56; Aug., 70.45; Sept., 63.82; Oct., 50.27; Nov., 40.20; Dec., 31.74. Columbus, Jan., 30.94; Feb., 36.44; March, 42.26; April, 53.12; May, 65.30; June, 70.98; July, 77.64; Aug., 74.69; Sept., 60.72; Oct., 49.80; Nov., 42.34; Dec., 35.28. (For mean annual and quarterly statement, see tables). Average rainfall, 42 inches.

Fulton County.—Bounded on the north by the State of Michigan; on the east by Lucas county; on the south by Henry; on the west by Williams county. Area, 335 square miles. Population, 17,789. Geology. Devonian System (Huron Shale, Gennessee and Portage). Natural Drainage. Bear Creek. Surface generally flat, soil fertile. Altitude of points in the county. Archibald, 724 feet; Delta, 712; Wauseon, 763. Climatology, (observations wanting). Average annual rainfall 36 inches.

Gallia County.—Bounded on the north by Vinton and Meigs counties; on the east by the Ohio River and the State of West Virginia; on the south by Lawrence; on the west by Jackson county. Area, 425 square miles. Population 25,545. Geology. Carboniferous System (Coal Measures). Natural Drainage. Campaign, Chickaman, Indian, Guyandotte, and Raccoon Creeks. Surface hilly, soil only passably fertile. Altitude of points in the county. Gallipolis, 600 feet.

Climatology.—Gallipolis, Jan., 29.78°; Feb., 35.11; March, 41.44; April, 53.91; May, 61.87; June, 70.65; July 75.72; Aug., 72.79; Sept., 68.98; Oct., 53.84; Nov., 43.57; Dec., 34.68. (For mean annual and quarterly statement, see tables). Average annual rainfall in county, 42 inches.

Geauga County.—Bounded on the north by Lake county; on the east by Ashtabula and Trumbull; on the south by Portage; on the west by Summit. Area, 425 square miles. Population 14,190. Geology. Carboniferous system (Carboniferous Conglomerate at Northern half; coal measures at Southern half). Natural Drainage. Cuyahoga, Grand and Chagrin Rivers. Surface rolling, soil only passably fertile. Altitude of points in the county. Chardon, 600 feet; Little Mountain, 1180; Welchfield, 1205; Head of Cuyahoga River, 1192.

Climatology. — Welchfield, Jan., 26.63°; Feb., 27.40; March, 34.68; April, 44.97; May, 57.57; June, 66.41; July, 71.21; Aug., 69.70; Sept., 61.90; Oct., 48.93; Nov., 37.83; Dec., 30.75. (For mean annual and quarterly statement, see tables). Annual rainfall in county, 36 inches.

Greene County.—Bounded on the north by Clarke county; on the East by Madison and Fayette; on the south by Clinton and Warren; on the west by Montgomery. Area, 430 square miles. Population 28,038. Geology. Silurian System (Niagara Group at eastern half; Clinton and Cincinnati Group at western half). Natural drainage. Mad and Little Miami Rivers, Bearer and Marvies Creeks. Surface undulating. Soil exceedingly fertile. Altitude of points in the county. Xenia, 924 feet; Osborn, 815; Yellow Springs, 963. Climatology, (observations wanting). Annual rainfall, northern half, 44 inches; southern half, 44 inches.

Guernsey County.—Bounded on the north by Coshocton, Tuscarawas and Harrison counties; on the east by Belmont; on the south by Noble; on the west by Muskingum county. Area, 460 square miles. Population, 23,838. Geology. Carboniferous System (Coal Measures). Natural Drainage. Buffalo, Leutherwood and Bushy Fork Creeks, affluents of Muskingum River. Surface hilly; soil passably fertile. Altitude of points in the county, Cambridge, 939 feet.

Climatology.—New Birmingham, Jan., 24.38°; Feb., 29.07; March, 35.24; April, 48.76; May, 57.32; June, 66.20; July, 72.19; Aug., 68.51; Sept., 61.90; Oct., 47.22; Nov., 36.94; Dec., 31.02. (For annual mean and quarterly statement for

New Birmingham, and also Milnersville, see tables). Annual rainfall, 40 inches.

Hamilton County. — Bounded on the north by Butler and Warren counties; on the east by Clermont; on the south by Ohio River and State of Kentucky; on the west by the State of Indiana. Area, 400 square miles. Population, 260,370. Geology. Silurian System (Cincinnati Group, Trenton and Hudson,) Natural drainage, Great and Little Miami Rivers, Mill, Clough, Taylors, McCulloughs, Duck, Deer, Dry Fork of Whitewater and other creeks. Artificial Drainage. Miami Canal, and Sewers of Cincinnati. Surface undulating and hilly. Soil extremely fertile. Altitude of points in county. Carthage, 498 feet; Mount Adams, 850; Mt. Auburn, 891; Cincinnati, 540; College Hill, 800; North Bend, 800.

Climatology.—Cincinnati, Jan., 32.91°; Feb., 35.35; March, 43.15; April, 54.81; May, 64.42; June, 72.64; July, 77.75; Aug., 75.33; Sept., 67.82; Oct., 54.22; Nov., 43.59; Dec., 34.59. College Hill, Jan., 29.88°; Feb., 33.31; March, 42.07; April, 53.41; May, 62.38; June, 70.26; July, 74.06; Aug., 72.18; Sept., 65.49; Oct., 53.42; Nov., 42.11; Dec., 31.76. Mt. Auburn, Jan., 31.20; Feb., 33.48; March, 38.11; April, 54.55; May, 63.42; June, 73.16; July, 77.46; Aug., 76.19; Sept., 70.50; Oct., 56.19; Nov., 42.92; Dec., 34.87. North Bend, Jan., 32.55°; Feb., 34.48; March, 41.09; April, 54.17; May, 63.66; June, 69.98; July, 73.88; Aug., 73.56; Sept., 65.92; Oct., 56.04; Nov., 41.95; Dec., 31.29. (For mean annual and quarterly statement, see tables). Annual average rainfall in county, 46 inches.

Hancock County.—Bounded on the north by Wood county; on the east by Seneca and Wyandot; on the south by Hardin; on the west by Putnam and Allen counties. Area, 533 square miles. Population, 23,847. Geology. Silurian System (Water, Lime and Salina, Niagara Group). Natural drainage. Portage and Auglaize Rivers. Surface generally level; soil fertile. Altitude of points in the county. Findlay, 773 feet; Rawson, 810. Climatology, (observations wanting). Average rainfall in county, 40 inches.

Hardin County.—Bounded on the north by Hancock county; on the east by Wyandot and Marion; on the south by Logan and Union; on the west by Allen and Auglaize counties. Area, 426 square miles. Population, 18,714. Geology. Silurian System. (Water Lime and Salina, Niagara Group). Natural Drainage. Scioto and Miami Rivers, and Blanchards Fork Creek. Surface generally level, soil fertile. Altitude of points in the county. Forest, 928 feet; Hog Creek, 938; Kenton, 945; Dunkirk, 932.

Climatology.—Kenton, Jan. 30.00°; Feb., 33.41; March, 36.63; April, 48.06; May, 54.96; June, 72,14; July, 79.73; Aug., 74.50; Sept., 67.01; Oct., 52.29; Nov. 40.21; Dec., 31.24. (For mean annual and quarterly statement, see tables). Average rainfall in the county, 40 inches.

Harrison County.—Bounded on the north by Carroll county; on the east by Jefferson; on the south by Belmont; on the west Tuscarawas County. Area, 400 square miles. Population, 18,682. Geology. Carboniferous System (Coal Measures). Natural Drainage. Cross, Stillwater and Connolten Creeks. Surface undulating and hilly, soil fertile. Altitude of points in the county. Bowerstown, 821 feet; Cadiz Junction, 1056; Fairview, 993; Masterville, 926; New Market, 951.

Climatology, (observations wanting). Annual average rainfall, eastern portion, 36 inches; western portion 40 inches.

Henry County.—Bounded on the north by Fulton county; on the east by Wood; on the south by Putnam; on the west by Defiance county. Area, 500 square miles. Population 14,028. Geology. Devonian System (Huron Shales, Hamilton Group, Corniferous Limestone). In southeastern corner of county Silurian System (Water Lime and Salina, Clinton Group). Natural Drainage. Maumee River. Artificial Drainage. Wabash and Erie Canal. Surface generally flat, soil passably fertile. Altitude of points in the county. Washington, 880 feet.

Climatology (observations wanting). Average annual rainfall in county, 38 inches.

Highland County.—Bounded on the north by Fayette and Clinton counties; on the east by Ross and Pike; on the south by Brown and Adams; on the west by northern half of Brown county. Area, 460 square miles. Population, 29,133. Geology. Silurian System (Niagara Group, eastern half of county, Clinton and Cincinnati Group at western half). Natural Drainage. Paint, White Oak and Brush Creeks. Surface undulating, soil fertile.

Altitude of points in the county. Hillsboro, 1150 feet; Shultz Mountain, 1254.

Climatology. — Hillsboro, Jan., 29.07°; Feb., 31.59; March, 38.24; April, 51.32; May, 60.46; June, 68.29; July, 72.88; Aug. 70.16; Sept., 63.81; Oct., 50.79; Nov., 40.33; Dec., 30.90. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 44 inches.

Hocking County.—Bounded on the north by Fairfield and Perry counties; on the east by Athens; on the south by Vinton; on the west by Pickaway and Ross counties. Area, 420 square miles. Population, 17,925. Geology. Carboniferous System (Coal Measures and Waverly Group). Natural Drainage. Hocking River, Salt and Raccoon Creeks. Surface hilly, soil passably fertile. Altitude of points in the county. Logan, 772 feet.

Climatology (observations wanting). Annual rainfall in the County, 42 inches.

Holmes County. — Bounded on the north by Wayne county; on the east by Tuscarawas; on the south by Coshocton; on the west by Ashland and Knox counties. Area, 400 square miles. Population 18,177. Geology. Carboniferous System (Coal Measures). Natural Drainage. Walhonding River, Killbuck and Doughtys Fork Creeks. Surface undulating, soil passably fertile. Altitude of points in the County. Lakeville, 901 feet; Napoleon, 854; Berlin, 941.

Climatology, (observations wanting). Annual rainfall, 40 inches.

Monroe County. Bounded on the North by Erie County; on the east by Lorain and Ashland; on the south by Richland and Crawford; on the west by Seneca county. Area, 464 square miles. Population, 28,532. Geology. Eastern half, Carboniferous System; western half, Devonian system; (Waverly Group, Huron Shales, Hamilton Group). Natural Drainage. Huron and Vermillion Rivers and Chappell Creek. Surface undulating, soil very fertile. Altitude of points in the county. New Haven, 414 feet; New London, 988; Norwalk, 620; Ripley, 574; Bellevue, 740; Monroesville, 705; New London, 970; Greenwich, 1025; Townsend, 867; Wakeman, 853; North Fairfield, 660.

Climatology.—Norwalk, Jan., 25.29°; Feb., 29.34; March, 35.02; April, 47.70; May, 55.95; June, 66.66; July, 70.64; Aug., 68.78; Sept., 91.64; Oct., 50.67; Nov., 40.31; Dec., 30.35. Ripley, Jan., 22.58°; Feb., 30.57; March, 36.07; April, 46.92; May, 56.20; June, 70.49; July, 72.29; Aug., 71.99; Sept., 66.27; Oct., 49.71; Nov., 43.88; Dec., 30.53. North Fairfield, Jan., 28.32; Feb., 29.32; March, 34.10; April, 48.89; May, 58.10; June, 68.69; July, 74.18; Aug., 72.10; Sept., 65.95; Oct, 51.08; Nov., 40.79; Dec., 28.74. (For mean annual and quarterly statement, see tables). Average annual rainfall in the County, 36 inches.

Jackson County.—Bounded on the north by Vinton county; on the east by Gallia; on the south by Lawrence and Scioto; on the west by Pike county. Area, 378 square miles. Population, 21,759. Geology. Carboniferous System (Coal Measures). Natural Drainage. Little Scioto River, Salt and Symmes Creeks. Surface hilly, soil passably fertile. Altitude of points in the county. Jackson, 700 feet.

Climatology.—Jackson, Jan. 33.21°; Feb., 34.16; March, 40.73; April, 52.37; May, 62.14; June, 70.74; July, 75.19; Aug., 72.25; Sept., 66.62; Oct., 51.87; Nov., 43.61; Dec., 31.33. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 42 inches.

Jefferson County.—Bounded on the north by Columbiana county; on the east by the State of West Virginia; on the south by Belmont; on the west by Carroll and Harrison counties. Area, 350 square miles. Population 29,188. Geology. Carboniferous System (Coal Measures). Natural Drainage. Yellow and Cross Creeks. Surface hilly, soil passably fertile. Altitude of points in the county. Hammondville, 677 feet; Jeddo, 683; McCoys Station, 677; Port Homer, 687; Portland, 667; Skelley, 833; Yellow Creek Station, 687; Steubenville, 670.

Climatology.—Steubenville, Jan., 29.76°; Feb., 31.95; March, 39.53; April, 51.54; May, 61.91; June, 70.77; July, 74,94; Aug., 72.09; Sept., 64.79; Oct., 51.87; Nov., 40.91; Dec., 31.95. (For mean annual and quarterly statement, see tables). Annual rainfall in county, 38 inches.

Knox County.—Bounded on the north by Richland and Ashland counties; on the east by Holmes and Coshocton, on the south by Licking; on the west by Delaware and Morrow counties. Area, 528 square miles. Population, 26,333. Geology. Carboniferous System (Waverly Group). Natural Drainage. Vernon, Walhonding, and (North Fork of) Licking Rivers. Surface hilly, soil extremely fertile. Altitude of points in the county. Gambier, 1000 feet; Howard, 878; Mt. Holly, 847; Mt. Liberty, 1188; Mt. Vernon, 1165; North point of county, 1279.

Climatology.—Gambier, Jan. 29.94°; Feb., 28.23; March, 36.61; April, 46.10; May, 61.54; June, 69.85; July, 73.55; Aug., 68.59; Sept., 62.99; Oct., 49.54; Nov., 41.34; Dec., 28.41. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 40 inches.

Lake County.—Bounded on the north by Lake Erie; on the east by Ashtabula county; on the south by Geauga; on the west by Cuyahoga county. Area, 220 square miles. Population, 15,935. Geology. Devonian System (northern, central and western portion, Huron Shales); Carboniferous System (southeastern portion, Carboniferous Conglomerate and Waverly Group). Natural drainage. Chagrin and Grand Rivers. Surface undulating, soil fertile. Altitude of points in the county. Little Mountain, 1165 feet; Painesville, 670; Mentor, 642; Perry, 683; Wickliffe, 648; Madison, 620; Willoughby, 626.

Climatology. — Madison, Jan., 26.54°; Feb., 27.43; March, 34.23; April, 45.32; May, 55.64; June, 65.43; July, 70.41; Aug., 68.26; Sept., 62.07; Oct., 50.42; Nov., 39.19; Dec., 30.86. (For mean annual and quarterly statement of Madison, and also Painesville, see tables). Average annual rainfall in the county, 32 inches.

Lawrence County.—Bounded on the north by Jackson county; on the east by Gallia; on the south by Ohio River and the States of West Virgina and Kentu[illegible] the west by Scioto county. Area, 400 square miles. Po[illegible] Geology. Carboniferous System (Coal Measures). Natural Drainage. Symmnes Creek. Surface hilly, soil passably fertile. Altitude of points in the county (no observations).

Climatology, (observations wanting). Annual average rainfall in county, 42 inches.

Licking County.—Bounded on the north by Knox county; on the East by Coshocton and Muskingum; on the South by Perry and Fairfield; on the west by Delaware and Franklin. Area, 670 square miles. Population, 35,756. Geology. Carboniferous System, (Coal Measures, Carboniferous Conglomerate, and

Waverly Group). Natural drainage. Licking River and its affluents. Artificial drainage. Ohio Canal. Surface generally level, soil passably fertile. Altitude of points in the county. Newark, 852 feet; Granville, 995 feet.

Climatology.—Croton, Jan., 28.55°; Feb., 32.56; March, 37.08; April, 50.68; May, 60.15; June, 68.30; July, 72.25; Aug., 71.71; Sept., 62.95; Oct., 51.20; Nov., 37.78; Dec., 31.84. Granville, Jan., 26.23°; Feb., 27.84; March, 34.76; April, 47.06; May, 55.44; June, 63.93; July, 67.17; Aug., 65.56; Sept., 58.33; Oct., 46.15; Nov., 36.75; Dec., 29.74. Newark, Jan., 26.07°; Feb., 3004; March, 37.13; April, 49.91; May, 56.22; June, 65.45; July, 70.00; Aug., 69.90; Sept., 61.22; Oct., 52.32; Nov., 38.51; Dec., 32.26. (For mean annual and quarterly statements, see tables). Average annual rainfall in the county, 40 inches.

Logan County.—Bounded on the north by Hardin and Auglaize counties, on the east by Union, on the south by Champaign, on the west by Shelby county. Area, 457 square miles. Population, 23,028. Geology. Silurian System (Niagara Group, Water Lime and Salina, Oriskany Sandstone). In eastern portion of county, Devonian System, (Huron Shales). Natural Drainage. Miami River, Otter, Pockinjeshala, McKee, Cherokee, Rush, Bokes, Muskinippic, Stony and Graves Creeks. Surface undulating and hilly, soil fertile. Altitude of points in the county. Head waters of Great Miami River, 1335 feet; Bellefontaine, 1040; East Liberty, 1125; Northwood, 1170; Quincy, 1064; Head Waters Scioto River, 1344; West Liberty, 103[illegible] Huntsville, 1215; Walnut Grove, 1220. [illegible]

Climatology.—[illegible]e, Jan., 24.89°; Feb., 25.05; March, 36.61; April, 48.89; May, 61.12; June, 71.38; July, 75.80; Aug., 70.65; Sept., 64.45; Oct., 51.93; Nov., 39.28; Dec., 28.82. (For mean annual and quarterly statement, see tables). Annual rainfall in the county, 42 inches.

Lorain County.—Bounded on the north by Lake Erie; on the east by Cuyahoga county; on the south by Medina and Ashland; on the west by Erie and Huron counties. Area, 485 square miles. Population, 30,308. Geology. Northern border, Devonian System (Huron Shales). Balance of county, Carboniferous System (Waverly Group). Natural Drainage, Black and Vermillion

Rivers. Surface generally flat, soil passably fertile. Altitude of points in the county. Avon, 840 feet; Wellington, 805; Brownhelm, 631; Elyria, 721; Grafton, 788; Kipton, 834; Pittsfield, 821; Rochester, 925; Oberlin, 800.

Climatology.—Oberlin, Jan., 24.88°; Feb., 28.14; March, 34.97; April, 46.30; May, 58.10; June, 69.34; July, 72.20; Aug., 70.31; Sept., 64.53; Oct., 50.75; Nov., 39.49; Dec., 29.55. Avon, Jan., 31.10°; Feb., 32.42; March, 45.76; April, 45.72; May, 62.14; June, 64.72; July, 72.92; August, 70.38; Sept., 62.05; Oct., 47.17; Nov., 40.74; Dec., 31.31.

(For mean annual and quarterly statement, see tables). Annual average rainfall, 34 inches.

Lucas County.—Bounded on the north by the State of Michigan; on the east by Lake Erie; on the south by Wood county; on the west by Fulton County. Area 560 square miles. Population, 46,422. Geology. Silurian System (northern and eastern portion, Water Lime and Salina). Devonian System (western border, Oriskany Sandstone, Corniferous Limestone, Hamilton Group). Natural Drainage. Maumee River, Sugar and Swan Creeks. Artificial Drainage. Wabash and Erie Canal. Surface generally flat, soil very fertile. Altitude of points in the county, Sylvania, 654 feet; Toledo, 604.

Climatology.—Toledo, Jan., 26.92°; Feb., 29.72; March, 35.71; April, 46.77; May, 58.22; June, 68.45; July, 72.35; Aug., 69.79; Sept., 62.44; Oct., 50.48; Nov., 39.58; Dec., 30.01. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 34 inches.

Madison County.—Bounded on the north by Union County; on the east by Franklin and Pickaway; on the south by Fayette; on the west by Clark, Champaign and Green Counties. Area, 480 square miles; Population, 15,633. Geology. Silurian System (Water Lime and Salina). Natural Drainage. Darby and Little Darby Creeks. Surface rolling, soil passably fertile. Altitude of points in the county (observations wanting).

Climatology (observations wanting). Average annual rainfall, 42 inches.

Mahoning County.—Bounded on the north by Trumbull county; on the east by the State of Pennsylvania; on the south by Columbiana; on the west by Portage and Stark counties. Area, 403 square miles. Population, 31,001. Geology. Carboniferous System (Coal Measures). Natural Drainage. Mahoning River. Surface undulating, soil fertile. Altitude of points in the county, Youngstown, 800 feet; Canfield, 1152; Damascus, 1121; Orange, 945.

Climatology, (observations wanting). Average annual rainfall in the county; northern portion 38 inches.

Marion County.—Bounded on the north by Wyandot and Crawford counties; on the east by Morrow; on the south by Union and Delaware; on the west by Hardin county. Area, 360 square miles. Population, 16,184. Geology. Eastern half Devonian System. (Hamilton Group, Carboniferous Limestone, Oriskany Sandstone). Western half. Silurian System (Water Lime and Salina, Niagara Group). Natural Drainage. Scioto and Whetstone Rivers. Surface generally level, soil fertile. Altitude of points in the county. Marion, 1077 feet; Fishing Creek, 675; Tymotchee Valley, 925.

Climatology.—Marion, Jan., 24.82°; Feb., 28.12; March, 34.72; April, 48.86; May, 57.23; June, 67.66; July, 72.81; Aug., 68.70; Sept., 62.96; Oct., 48.56; Nov., 38.49; Dec., 27.68. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 40 inches.

Medina County.—Bounded on the north by Cuyahoga and Lorain counties; on the east by Summit; on the south by Wayne; on the West by Lorain and Ashland Counties. Area, 425 square miles. Population, 20,092. Geology. Carboniferous System (Waverly Group, carboniferous conglomerate). Natural Drainage. Rocky and Black Rivers, and Chippewa Creek. Surface rolling, soil fertile. Altitude of points in the county. Medina, 1255 feet; Harrisville, 922; Liverpool, 682; Seville, 1075.

Climatology.—Montville, Jan., 29.45°; Feb., 29.24; March, 36.42; April, 45.84; May, 57.19; June, 65.57; July, 70.07; Aug., 68.85; Sept., 62.30; Oct., 50.94; Nov., 38.27; Dec., 31.38. Seville, Jan., 26.86°; Feb., 33.60; March, 35.43; April, 48.72; May, 53.02; June, 67.65; July, 69.75; Aug., 63.45; Sept., 63.10; Oct., 53.60; Nov., 38.80; Dec., 34.98. (For mean annual and quarterly statement, see tables). Average annual rainfall in the County, 36 inches.

Meigs County.—Bounded on the north by Athens county; on the east by the Ohio River and State of West Virginia; on the south by Gallia; on the west by Vinton county. Area, 340 square miles. Population, 31,465. Geology. Carboniferous System (Coal Measures). Natural Drainage. Shade River, Kingsbury, Leading, Thomas and Bowman Creeks. Surface rolling, soil fertile. Altitude of points in the county. Pomeroy, 350 feet; Harrisonville, 678; Le Tarts Shoals, 555.

Climatology, (observations wanting.) Average annual rainfall in the county, 42 inches.

Mercer County.—Bounded on the north by Van Wert county; on the east by Auglaize; on the south by Darke county; on the west by the State of Indiana. Area, 470 square miles. Population, 17,254. Geology. Silurian System (Niagara Group). Natural Drainage. Wabash and St. Marys Rivers. Surface generally level, soil fertile. Altitude of points in the county. Carthagena, 898 feet; Celina, 952; St. Marys, 843.

Climatology, (observations wanting). Average annual rainfall in the County, 42 inches.

Miami County.—Bounded on the north by Shelby county; on the east by Champaign and Clarke; on the south by Montgomery; on the west by Darke county. Area, 410 square miles. Population, 32,740. Geology: Silurian System (Niagara Group, Clinton Group, Cincinnati Group). Natural Drainage. Miami River, Lost, Panther, Honey and Spring Creeks. Artificial Drainage. Miami Canal. Surface usually level, soil fertile. Altitude of points in the county: Piqua, 856 feet; Kilbuck, 901; Troy, 1103; Summit Station, 885.

Climatology.—Troy, Jan., 29.24°; Feb., 32.81; March, 40.48; April, 50.69; May, 63.91; June, 70.92; July, 74.70; Aug., 73.48; Sept., 63.98; Oct., 52.23; Nov., 40.38; Dec., 30.53. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 42 inches.

Monroe County.—Bounded on the north by Belmont County; on the east by the State of West Virginia; on the south by Washington; on the west by Noble county. . Area, 425 square miles. Population, 25,799. Geology. Carboniferous System (Coal Measures). Natural Drainage. Little Muskingum River and Spanish Creek. Surface hilly, soil fertile. Altitude of points in the county. Jerusalem, 1513 feet; Onawn, 1000; Jackson, 540.

Climatology.—Jackson, Jan., 34.80°; Feb., 31.80; March, 40.73; April, 52.18; May, 63.23; June, 70.96; July, 76.88; Aug., 69.59; Sept., 64.96; Oct., 51.51; Nov., 40.33; Dec., 34.20. (For mean annual and quarterly statement, see tables). Annual average rainfall in the county; eastern portion 38 inches; western portion, 40 inches.

Montgomery County.—Bounded on the north by Miami county; on the east by Greene; on the south by Warren and Butler; on the west by Preble county. Area, 450 square miles. Population, 64,006. Geology. Silurian System (Cincinnati Group, Clinton Group, Niagara Group). Natural Drainage. Miami and Mad Rivers, and Little Twin Creek. Surface mostly level, soil fertile. Altitude of points in the county. Dayton, 860 feet; Germantown, 720; Brookville, 624; Carroltown, 711; Taylortown, 1083.

Climatology.—Germantown, Jan., 22.57°; Feb., 30.11; March, 35.69; April, 53.46; May, 61.28; June, 70.17; July, 76.36; Aug., 72.01; Sept., 67.09; Oct., 52.56; Nov., 40.41; Dec., 27.99. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 44 inches.

Morgan County.—Bounded on the north by Muskingum county; on the east by Noble, and Washington; on the south by Athens; on the west by Perry county. Area, 375 square miles. Population, 20,363. Geology. Carboniferous System (Coal Measures). Natural Drainage. Muskingum River, and Meigs Creek. Surface hilly, soil fertile. Altitude of points in the county. Pennsville, 555 feet; Quaker Ridge, 555.

Climatology (observations wanting). Average annual rainfall in the county, 40 inches.

Morrow County.—Bounded on the north by Crawford county; on the east by Richland and Knox; on the south by Delaware; on the west by Marion county. Area, 375 square miles. Population, 18.583. Geology. Eastern half, Carboniferous System (Waverly Group); western half, Devonian System (Huron Shales, Hamilton Group). Natural Drainage. Cedar Fork and Vernon Rivers, also, affluents of Scioto River. Surface generally level. Soil fertile. Altitude of points in the county. Iberia, 1160 feet; Cardington, 997; Mt. Gilead, 1085.

Climatology (observations wanting). Average annual rainfall in the county, 40 inches.

Muskingum County. — Bounded on the north by Coshocton county; on the east by Guernsey; on the south by Perry and Morgan; on the west by Licking county. Area, 615 square miles. Population, 44,886. Geology: Carboniferous System (Coal Measures). Natural Drainage: Muskingum River, Brushy Fork, Licking, Salt, White Eyes, Williams Fork, Buffalo Fork, Dry Ripple, Timber Run, Kents Run, Jonathan, Buckeye, Brush and Duncans Creeks. Artificial Drainage. Ohio Canal. Surface rolling, soil fertile. Altitude of points in the county. Adams Mills, 923 feet; Zanesville, 700 feet; Dresden, 779; Ellis 796; Frazeysburg, 743.

Climatology.—Zanesville, Jan., 31.89°; Feb., 35.10; March, 35.30; April, 56.20; May, 64.20; June, 71.69; July, 77.25; Aug., 73.67; Sept., 69.48; Oct., 52.40; Nov., 45.31; Dec., 32.64. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 40 inches.

Noble County.—Bounded on the north by Guernsey county; on the east by Belmont and Monroe; on the south by Washington; on the west by Muskingum and Morgan. Area, 450 square miles. Population, 19,949. Geology. Carboniferous System (Coal Measures). Natural Drainage. Wells and Duck Creeks. Surface rolling, soil fertile. Altitude of points in the county. Caldwell, 725 feet; Dexter City, 698; Dudley, 698.

Climatology (observations wanting). Annual rainfall, 40 inches.

Ottawa County.—Bounded on the north by Lake Erie and Lucas county; on the east by Lake Erie; on the south by Sandusky; on the west by Woods county. Area, 250 square miles. Population, 13,364. Geology. Silurian System, (Water, Lime and Salina, Niagara Group). Natural Drainage. Portage and Toussaint Rivers. Surface undulating, soil fertile. Altitude of points in the county. Elmore, 605 feet; Graytown, 592; Oak Harbor, 587; North Bass Island (Island on Lake Erie), 587; Salem, 950.

Climatology.—North Bass Island, Jan., 28.08°; Feb., 27.28; March, 31.68; April, 47.27; May, 62.13; June, 68.53; July, 73.38; Aug., 73.53; Sept., 68.10; Oct., 51.93; Nov., 39.60; Dec., 30.86. Salem, Jan., 31.83°; Feb., 29.35; March, 34.30; April, 52.45; May, 64.35; June, 70.05; July, 75.33; Aug., 74.10; Sept., 64.45; Oct., 51.63; Nov., 38.93; Dec., 26.90.

(For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 34 inches.

Paulding County.—Bounded on the north by Defiance county; on the east by Putnam; on the south by Van Wert county; on the west by the State of Indiana. Area, 420 square miles. Population 8,544. Geology. Devonian System (Carboniferous Limestone, Hamilton Group, Oriskany Sandstone). Natural Drainage: Auglaize and Maumee Rivers, Cordon, Six Mile, Crooked and Blue Creeks. Surface generally level, at places swampy. Soil exceedingly fertile. Altitude of points in the county (observations wanting).

Climatology (observations wanting). Average annual rainfall, 40 inches.

Perry County.—Bounded on the north by Licking county; on the east by Muskingum and Morgan; on the south by Athens and Hocking; on the west by Fairfield county. Area, 400 square miles. Population, 18,453. Geology. Carboniferous System (Coal Measures). Natural Drainage. Jonathan, Rush and Sunday creeks. Surface hilly, soil passably fertile. Altitude of points in the county. New Lexington, 931 feet; Pickeralstown, 1380.

Climatology (observations wanting). Annual rainfall in the county, 40 inches.

Pickaway County.—Bounded on the north by Franklin county; on the east by Fairfield; on the south by Ross; on the west by Madison and Fayette counties. Area, 500 square miles. Population, 24,875. Geology. Devonian System (Huron Shales, Hamilton Group, Carboniferous Limestone). Natural Drainage. Scioto River, Walnut and Big Darby creeks. Surface rolling, soil very fertile. Altitude of points in the county. Kinderhook, 916, feet; Williamsport, 700; Circleville, 664.

Climatology.—Tarlton, Jan., 30.93°; Feb., 35.96; March, 41.61; April, 46.07; May, 58.71; June, 64.73; July, 69.71; Aug., 64.23; Sept., 64.47; Oct., 49.55; Nov., 38.67; Dec., 30.13. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 42 inches.

Pike County.—Bounded on the north by Ross county; on the east by Jackson; on the south by Scioto; on the west by Adams and Highland counties. Area, 450 square miles. Population, 15,447. Geology. Eastern half, Carboniferous System (Waverly

Group); western half, Devonian System (Huron Shales). Natural Drainage. Scioto River, Pee-Pee, Crooked, Howard Run, Big Run, Wood Run, Morgans Fork and Camp creeks. Artificial Drainage. Ohio, and Erie Canal. Surface hilly, soil fertile. Altitude of points in the county. Elmwood, 900 feet; Piketown, 578.

Climatology (observations wanting). Average annual rainfall in the county. Eastern portion of county 42 inches; western portion, 44 inches.

Portage County.—Bounded on the north by Geauga county; on the east by Trumbull and Mahoning; on the south by Stark; on the west by Summit county. Area, 500 square miles. Population, 24,584. Geology. Carboniferous System (Coal Measures, Carboniferous Conglomerate). Natural Drainage. Cuyahoga and Mahoning Rivers. Artificial Drainage. Pennsylvania and Ohio Canal. Surface generally level, soil good. Altitude of points in the county. Freedom, 1100 feet; Aurora, 1165; Mantua, 1191; Ravenna, 1125; Edinburg, 520; Hiram, 1290.

Climatology.—Edinburg, Jan., 34.06°; Feb., 22.11; March, 33.57; April, 41.94; May, 55.23; June, 68.17; July, 72.71; Aug., 68.90; Sept., 63.80; Oct., 51.69; Nov., 35.52; Dec., 35.23. Freedom, Jan., 27.32°; Feb., 26.39; March, 34.55; April, 46.68; May, 62.19; June, 68.51; July, 72.71; Aug., 70.30; Sept., 61.13; Oct., 49.29; Nov., 39.77; Dec., 30.95. Hiram, Jan., 22.59°; Feb., 27.57; March, 33.37; April, 44.32; May, 54.92; June, 68.03; July, 72.63; Aug. 67.66; Sept., 62.74; Oct., 51.00; Nov., 36.58; Dec., 31.28. Windham, Jan., 32.36°; Feb., 27.42; March, 37.02; April, 43.56; May, 57.09; June, 65.37; July, 70.80; Aug., 68.12; Sept., 62.24; Oct., 49.64; Nov., 37.61; Dec., 32.50. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 36 inches.

Preble County.—Bounded on the north by Darke county; on the east by Montgomery; on the south by Butler county; on the west by the State of Indiana. Area, 425 square miles. Population, 21,809. Geology. Silurian System (Niagara Group, Cincinnati Group, Clinton Group). Natural Drainage. Prices, Irwin, Elk and Seven Mile Creeks. Surface rolling, soil fertile. Altitude of points in the county. Eaton, 1200 feet; New Westerfield, 692.

Climatology (observations wanting). Average annual rainfall in the county, 44 inches.

Putnam County.—Bounded on the north by Defiance and Henry counties; on the east by Hancock; on the south by Allen; on the west by Paulding and Van Wert counties. Area, 490 square miles. Population, 17,081. Geology. Northwestern corner of county Devonian System, (Oriskany Sandstone, Corniferous Limestone). The rest of the county, Silurian System (Water Lime and Salina). Natural Drainage. Blanchard and Auglaize Rivers; Powells, Reileys, Cranberry, Hog and Sugar Creeks. Much of the county is swampland; surface generally level; soil among the best in the state. Altitude of points in the county. Belmont, 724; Columbus Grove, 750; Leipsic, 753; Ottawa, 720.

Climatology (observations wanting). Average annual rainfall in the county, 40 inches.

Richland County.—Bounded on the north by Huron county; on the east by Ashland; on the south by Knox; on the west by Morrow and Crawford counties. Area, 450 square miles. Population, 32,516. Geology. Carboniferous System (Waverly Group). Natural Drainage. Black Fork and Clear Fork, affluents of the Walhonding River. Surface rolling, soil fertile. Altitude of points in the county. Mansfield, 1141 feet; Plymouth, 1000; Richland, 1190; Ontario, 1367; Shelby, 1073; Windsor, 1159; Worthington, 899.

Climatology (observations wanting). Average annual rainfall in northern portion of county from 36 to 38 inches; southern portion of county, 40 inches.

Ross County.—Bounded on the north by Pickaway county; on the east by Hocking and Vinton; on the south by Pike; on the west by Fayette and Highland counties. Area, 725 square miles. Population, 37,097. Geology. Eastern third of county, Carboniferous System (Waverly Group); central and western portions, Devonian System (Huron Shales, Genessee and Portage). Natural Drainage. Scioto River and Paint Creek. Artificial Drainage. Ohio and Erie Canal. Surface generally level; soil exceedingly fertile. Altitude of points in the county. Chillicothe, 620 feet; Kingston, 692.

Climatology.—Kingston, Jan., 26.94°; Feb., 33.62; March, 39.34; April, 53.37; May, 59.57; June, 70.44; July, 74.28;

Aug., 70.84; Sept., 66.71; Oct., 51.45; Nov., 42.09; Dec., 30.54. (Eor mean annual and quarterly statement, see tables). Average annual rainfall in the county, 42 inches.

Sandusky County.—Bounded on the north by Ottawa county; on the east by Erie; on the south by Seneca; on the west by Wood county. Area, 425 square miles. Population, 25,503. Geology. Southeastern corner of county, Devonian System (Carboniferous Limestone; Oriskany Sandstone), balance of county, Silurian System (Water Lime and Salina; Niagara Group). Natural Drainage. Sandusky River, Wine Mill, Big Mud, Muscithung, Sugar, Raccoon, Green, Little Portage, Little Pickeral and Big Pickeral Creeks. Surface generally flat and swampy at places; soil very fertile. Altitude of points in the county. Clyde, 682 feet.

Climatology (observations wanting). Average annual rainfall in the county, 36 inches.

Scioto County.—Bounded on the north by Pike and Jackson counties; on the east by Lawrence; on the south by the Ohio River and the State of Kentucky; on the west by Adams county. Area, 640 square miles. Population, 29,302. Geology. Northwestern corner and western border of county, Devonian System (Huron Shales), balance of county, Carboniferous System (Carboniferous Conglomerate, Coal Measures, Waverly Group). Natural Drainage. Scioto and Little Scioto Rivers, and Brush Creek. Artificial drainage. Ohio and Erie Canal. Surface hilly, soil very fertile. Altitude of points in the county. Portsmouth, 537 feet.

Climatology.– Portsmouth, Jan., 33.07°; Feb., 36.17; March, 44.71; April, 54.29; May, 64.74; June, 72.29; July, 75.59; Aug., 74.51; Sept., 65.37; Oct., 57.70; Nov., 44.61; Dec., 36.76. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, eastern portion of county, 42 inches; western portion, 44 inches.

Seneca County.—Bounded on the north by Sandusky county; on the east by Huron; on the south by Crawford and Wyandot; on the west by Wood and Hancock counties. Area, 550 square miles. Population, 30,827. Geology. Eastern third of county, Devonian System (Hamilton Group, Corniferous Limestone, Oriskany Sandstone). Central and western portion of county, Silurian System (Water Lime and Salina, Niagara Group). Natural Drainage. Sandusky River, Honey and Green Creeks. Surface generally level, soil very fertile. Altitude of points in the county, Tiffin, 750 feet; Fostoria, 820; Kansas, 720; London, 1010; Republic, 875.

Climatology (observations wanting). Average annual rainfall in the county, 36 inches in northeastern portion; in southwestern, 38 inches.

Shelby County.—Bounded on the north by Auglaize county; on the east by Logan and Champaign; on the south by Miami; on the west by Mercer and Darke counties. Area, 520 square miles. Population, 20,748. Geology. Silurian System (Niagara Group). Natural Drainage. Miami River and Laramies Creek. Artificial Drainage. Miami Canal. Surface undulating; soil fertile. Altitude of points in the county. Loraine, 752 feet; Botkins, 1006.

Climatology.—Sidney, Jan., 18.38°; Feb., 39.75; March, 35.20; April, 40.33; May, 56.08; June, 67.81; July, 74.22; Aug., 70.50; Sept., 64.22; Oct., 53.50; Nov., 38.96; Dec., 21.15. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 42 inches.

Stark County.—Bounded on the north by Portage and Summit counties; on the east by Mahoning and Columbiana; on the south by Carroll and Tuscarawas; on the west by Wayne county. Area, 558 square miles. Population, 52,508. Geology. Carboniferous System (Coal Measures). Natural Drainage: Tuscarawas River, Bigeon Run, Wolf Run, Winnishilon, Indian Run, Little Sandy and Brush Creeks. Surface rolling; soil exceedingly fertile. Altitude of points in the county, Canton, 1000 feet; Alliance, 1074; Massilon, 941.

Climatology (observations wanting). Average annual rainfall in the county, northern portion, 38; southern portion 40 inches.

Summit County.—Bounded on the north by Cuyahoga county; on the east by Portage; on the south by Stark; on the west by Wayne and Medina counties. Area, 400 square miles. Population, 34,674. Geology. Carboniferous System; (Carboniferous Conglomerate, Waverly Group, Coal Measures) Natural Drainage. Cuyahoga, and Tuscarawas Rivers. Surface undulating; soil fertile. Altitude of points in the county. Akron, 965 feet;

Hudson, 1137; Middleburg, 1152; Twinburg, 1050; Cuyahoga Falls, 437.

Climatology.—Hudson, Jan., 28.40°; Feb., 30.45; March, 38.63; April, 48.76; May, 57.72; June, 65.94; July, 70.91; Aug., 69.51; Sept., 62.05; Oct., 49.68; Nov., 37.09; Dec., 29.91. (For mean annual and quarterly statement, see tables). Average annual rainfall in the county, 36 inches.

Trumbull County.—Bounded on the north by Ashtabula county; on the east by the State of Pennsylvania; on the south by Mahoning county; on the west by Portage and Geauga counties. Area, 620 square miles. Population, 38,659. Geology. Carboniferous System (Waverly Group). Natural Drainage. Mahoning and Grand Rivers. Artificial Drainage. Pennsylvania and Ohio Canal. Surface rolling; soil passably good. Altitude of points in the county. Champion, 905 feet; Baconburg, 955; Braceville, 891; Brookfield, 1145; Burghill, 1048; Girard, 875; Hubbard, 893; Warren, 892.

Climatology, (observations wanting). Average annual rainfall in the county, 36 inches.

Tuscarawas County.—Bounded on the north by Stark county; on the east by Carroll and Harrison; on the south by Guernsey; on the west by Coshocton and Holmes county. Area, 518 square miles. Population, 33,849. Geology. Carboniferous System (Coal Measures). Natural Drainage. Tuscarawas river, Sugar, Oldtown, Dunlap and Stillwater Creeks. Artificial Drainage: Ohio Canal. Surface rolling; soil fertile. Altitude of points in the county. Gilmore, 1180 feet; Dennison, 847; New Philadelphia, 877; Trenton, 825; Zoar Station, 875.

Climatology, (observations wanting). Average annual rainfall in the county, 40 inches.

Union County.—Bounded on the north by Marion and Hardin counties; on the east by Delaware; on the south by Madison and Franklin; on the west by Logan and Champaign. Area, 440 square miles. Population, 18,730. Geology. Silurian System (Water Lime and Salina). Natural Drainage. Rush, Bokes, Mill, Blues, Treacle, Big Darby and Little Darby Creeks. Surface generally level; soil passably good. Altitude of points in the county. Marysville, 990 feet; Richwood, 934.

Climatology, (observations wanting). Average annual rainfall in the county, northern portion, 40 inches; southern portion 42 inches.

Van Wert County.—Bounded on the north by Paulding county; on the east by Putnam and Allen; on the south by Mercer; on the west by the State of Indiana. Area, 400 square miles. Population, 15,823. Geology. Silurian System (Water Lime and Salina). Natural Drainage. St. Mary's and Little Auglaize Rivers. Artificial Drainage. Miami Canal. Surface generally level; soil passably good. Altitude of points in the county. Conroy, 784 feet; Van Wert, 779.

Climatology, (observations wanting). Average annual rainfall in the county 40 inches.

Vinton County.—Bounded on the north by Hocking county; on the east by Athens and Meigs; on the south by Jackson and Gallia; on the west by Ross county. Area, 419 square miles. Population, 15,027. Geology. Carboniferous System (Coal Measures, Waverly Group; Lower Carboniferous Limestone; Corniferous Conglomerate). Natural Drainage. Salt and Raccoon Creeks. Surface rolling; soil very fertile. Altitude of points in the county. Wilkesville, 716 feet.

Climatology, (observations wanting). Annual rainfall in the county, 42 inches.

Warren County.—Bounded on the north by Montgomery and Greene counties; on the east by Clinton; on the south by Clermont and Hamilton; on the west by Butler county. Area, 446 square miles. Population, 26,689. Geology. Silurian System (Cincinnati Group). Natural Drainage. Little Miami River, Clear, Turtle, Muddy, Colemans and Second Creeks. Surface rolling; soil very fertile. Altitudes of points in county. Carlisle, 692 feet; Morrow, 583; Lebanon, 828.

Climatology. — Lebanon, Jan., 34.66°; Feb., 34.25; March, 42.77; April., 54.38; May, 62.76; June, 70.46; July, 73.50; Aug., 71.15: Sept., 65.12; Oct., 52.10; Nov., 49.89; Dec., 28.01. (For mean annual and quarterly statement, see table). Average annual rainfall in the county, 44 inches.

Washington County.—Bounded on the north by Morgan, Noble and Monroe counties; on the east and south by the Ohio River and the State of West Virginia; on the west by Athens county. Area, 660 square miles. Population, 40,609. Geology. Carboniferous System (Coal Measures). Natural Drainage. Muskingum and Ltitle Muskingum, Rainbow, Eight Mile, Bear, Danas Run, Sheets Run, Paw Paw and Fifteen Mile Creeks. Surface undulating; soil fertile. Altitude of points in the county: Harmar, 631 feet; Cedar Narrows, 672; Lawrence, 958; Stanley, 671; Whipple, 645; Marietta, 670.

Climatology.—Marietta, Jan., 31.12°; Feb., 33.94; March, 41.60; April, 52.68; May, 61.67; June, 69.28; July, 73.12; Aug., 71.47; Sept., 64.60; Oct., 52.03; Nov., 41.93; Dec., 33.45. (For mean annual and quarterly statements refer to tables). Average annual rainfall, in the county, 40 inches.

Wayne County. — Bounded on the north by Medina county; the east by Summit; on the south by Holmes; on the west by Ashland county. Area, 545 square miles. Population, 35,116. Geology. Carboniferous System, (Coal Measures; Carboniferous Conglomerate; (Waverly Group). Natural Drainage. Chippewa River, Sugar, Buckeye Run, Coal Run, Killbuck, Little Killbuck, Jones Run, and Buckeye Run Creek. Surface undulating; soil fertile. Altitude of points in the county, Orrsville, 1049 feet; Smithville, 934; Wooster, 872.

Climatology.—Wooster, Jan., 24.05°; Feb., 29.31; March, 34.85; April, 49.75; May, 59.32; June, 71.31; July, 75.47; Aug., 72.65; Sept., 66.36; Oct., 50.38; Nov., 39.73; Dec., 29.36. (For mean annual and quarterly statements, see tables). Average annual rainfall in the county; northern portion 36 to 38 inches; southern portion, 40 inches.

Williams County.—Bounded on the north by the State of Michgan; on the east by Fulton county; on the south by Defiance on the west by the State of Indiana. Area, 475 square miles. Population, 20,991. Geology. Devonian System (Huron Shale, Portage and Chemung). Natural Drainage. St. Joseph and Tiffin Rivers. Surface rolling; soil fertile. Altitude of points in the connty. Bryan, 773 feet; Edgerton, 881; Madison, 650.

Climatology, (observations wanting). Average annual rainfall in the county, 38 inches.

Wood County. — Bounded on the north by Lucas county; on the east by Ottawa, Sandusky and Seneca; on the south by Hancock; on the west by Henry county. Area, 605 square miles. Population, 24,596. Geology. Silurian System (Water Lime and Salina, Niagara Group). Natural Drainage. Portage River, Crane, Braves, Black Swamp Run and Beaver Creek. Surface level; soil very fertile. Altitude of points in the county. Bowling Green, 700 feet; Pemberville, 705; Tontogony 659; Weston, 673.

Climatology.—Bowling Green, Jan., 28.97°; Feb., 29.28; March, 35.85 April, 48.91; May, 58.76; June, 69.14; July, 74.43; Aug., 70.80; Sept., 62.89; Oct., 51.09; Nov., 40.44; Dec., 32.05. Perrysburg, Jan., 25.60°; Feb., 26.90; March, 36.55; April, 50.18; May, 61.56; June, 72.18; July, 77.68; Aug., 71.80; Sept., 67.34; Oct., 54.03; Nov., 40.55; Dec., 31.10. (For mean annual and quarterly statements, see tables). Average annual rainfall in the county: northern portion, 36 inches; southern portion, 38 inches.

Wyandot County.—Bounded on the north by Seneca county; on the east by Crawford; on the south by Marion; on the west by Hardin and Hancock counties. Area, 410 square miles. Population, 18,553. Natural Drainage. Sandusky River, Taylors Run, Sugar Run, Negro Run, Broken Sword, Spring Run, and Tymochtee Creek. Surface generally level; soil fertile. Altitude of points in the county. Nevada, 925 feet; Kirby, 875.

Climatology, (observations wanting). Average annual rainfall in the county 40 inches.

Art. 2.—Vitalism and Vital Medication.

A Paper read before the Alumni Association of the Miami Medical College, February 26th, 1877, by

R. C. BOND, M. D., CLASS '57, AURORA, IND.

In considering this subject, I have purposely omitted psychological phenomena and special therapeutics, not because of their irrelevancy, but on account of a lack of sufficient time to do justice to those interesting features of my subject.

That the physician has to deal with the most abstruse and important problems in the whole range of human affairs, we think, will bear the test of honest and enlightened criticism. Life, in its broadest sense, is a phenomena of transcendent interest, and is clothed with mysteries surpassing all other subjects of human thought.

Life, or Vitalism, in its primordeal essence is unknown and probably unknowable by any means within the range of man's perceptions, and possibly for lack of knowledge of the nature and essential demands of this principle or force, we are ever to remain in total ignorance, not only as to how it attaches to matter, but of any *infallible* means of prolonging and sustaining its vital operations in the organism beyond a determinate allotment.

As to vitality, we concede that it can be investigated only as correlative with matter; that inheres or prevades the germinal element, or bioplasm of living structures; that it is autonomous, or self-moving and self-directing in the presence of a suitable pabulum; that it may be acted upon by external agents through the media of its own production; and that it does, by the brunt of adverse physical forces or conditions, cease to hold its correlative place in the organism.

We conceive vitality, in its essentiality, to be totally distinct from the physical forces, though intimately connected there-with; that it is *autonomic* and determines such a molecular disposition as is essential to the elaboration of the organism, and that it also conserves those molecular conditions and motions essential to every vital process. We dissent from the position that the physical forces, as light, heat, electricity, etc., are correlated as the organizing force of vital acts; also that there exists no *super*-terrestrial force, called vital, as a determining and controlling force in the organization of the living body and its complex activities.

We can not conceive that inorganic matter and the physical forces, can be, in any sense, other than only adjuvants of life, and are intended by the Supreme Architect to subserve the demands and ends of life on the Globe. We think it more reasonable to conclude with the learned *R. P. Secchi*, that "life is a phenomena of an entirely different order from the rest of the cosmogony—it is germinal, and pre-supposes certain powers which can not be obtained by a simple combination affected according to the laws which control the molecules of inorganic matter."

We also maintain that observation and reason bear us out in the assumption that the objective end of the cosmogony was life, and that life is in no sense, an accidental or fortuitous phenomenon of the physical forces and inorganic matter. These, though prior in the order of time, or subordinate in importance and design, to life the chief end of the cosmos. Inorganic matter and the physical forces are simply *elements* of the machinery, so to speak, of life. The most careful analytic and synthetic experimentations, as well as every process of philosophical and syllogistic induction, have utterly failed to give any definite or satisfactory solution of the phenomenon of life, based upon the hypothesis of a correlation of the physical forces.

To ignore, or overlook the fact of life, or vitalism, as an entity differing from all other principles or forces in nature, is to lose sight of the plainest lesson of experience and reason.

Finding no analogue of vitalism in any simple principle in nature, or in any other combination affected according to the laws which control inorganic matter, it is reasonable to conclude that life is a *super*-physical force of an entirely different order from the rest of the cosmogony. To accept this, is the only way to escape the *stifling maze* into which some modern biologists have fallen; for, no lessons of experience, or of inductive or deductive reason, afford us any other legitimate clue to the origin and distinctive principle of life.

Whether this vitalizing principle or force becomes extinct upon the death of the organism, or is resolved to a germinal state or condition, to be re-correlated with matter in the far-off future, are questions that may be asked, but not answered by physical or scientific tests.

Pathological view. That pathological, or diseased conditions occur in the essential nature of vitality, as some pathological phenomena, denominated vital, would seem to indicate, may be regarded as problematical, more especially by those biologists who maintain that life is a sequence of organization. But as an individual opinion, we hold that such conditions do not obtain, but that the whole history of life, in the organism, is one of persistent integrity in its essentiality, and that its varying phenomena are from sources entirely relative.

We freely admit degrees of its manifestations, as seen in individual dynamia, adynamia, and other peculiarities of ancestral or fortuitous origin, or as may be observed in disease, or exhaustive efforts of body and mind, or as in inanition. Nor, in this view of vitalism, will it be necessary to deny that it may be in embryo, full development, or decline, as these relative states of latency or activity do not affect its essential nature.

But we do assume that its apparent abnormities, as well as its uncertain tenure, are due to a perverted or changed pabulum, unsuited to its normal work, and the laws of an indefinite existence.

In premature death, vital extinction is evidently due to structural or organic changes, and is it at all unreasonable to presume that the decline, or decrepitude of old age is the result wholly of mal-adjustment between nutritition and disintegration, and not from an inherent waning of life in its essentiality ?

By mal-adjustment, we mean, that the normal processes of nutrition and retrograde metamorphosis in advancing age, become by slow degrees, less and less synchronous, resulting in pectous changes in the colloidal structures of the organism, hence the shrinking and diminished elasticity of old age.

Why these processes were *so gaged*, or the reason of this lack of synchronism, is hidden with the Divine Law-Giver, whose wisdom and out-look are too infinite to call in question. The primal impulse, whether dust or otherwise, that determines organization, or if you please, concourse of atoms, is the principle or force we denominate vital, and which we claim to be, not *nisus consecutions*, but the *nisus formations* of organization. Such a force, in the nature of things must exist, otherwise we have effects without a cause. A cause must of necessity pre-exist, and be an entity, in some important sense, independent of its effects. To presume then that the vital force or principal may be morbid, *per se*, seems much like assuming that there may be pathological oxygen or hydrogen, or of any other ultimate principles.

Permit me to suggest, by the way, that diseases of an adynamic type, and all maladies indicating asthenia, or approaching death, are such by reason of the vital force being held in *abeyance* by structural or functional conditions of the organism ; and that death, somatic and molecular, is but the *smothering out*, so to speak, of the vital force, and not, we concieve, from disease or death of vitality itself, as first in the order of causation. In this view we get a clue to the reason why doubts may occur as to the exact date of absolute death, for in some modes of death the vital extinction may be the last link in the chain of that, to us, sad phenomenon.

Vital Medication. If the preceding views of vitality be correct, there can be no such thing as direct vital medication, in other words, life itself, so far as we can understand, needs no medication. In perverted vital force, no remedies can be more than proximate or relative.

Life or vitalism, in disease affecting its normal play, can be restored only by means, the effects of which are vital liberation and conservation. Such a view may be thought, by some, unique or heterodox, but by way of compensation or redress, allow me to assume:

1st. That the neural system is the direct medium and agent of all centric and peripheral vital acts.

2nd. That many local, as well as general maladies are due to perverted nerve influence.

These propositions are not at all new, but by reason of their practical bearings should be clearly registered upon the mind.

These assumptions, for my present purpose, will be sufficiently substantiated by referring to the fact of the intimate connection and dependence of life upon the integrity of the cerebro-spinal centres; being the axis of all sensory and motor phenomena, whether automatic or volitional, thus making it at once apparent, how much attaches to nervous integrity in every vital process.

In a transmitted impression or force, the state or condition of the conducting medium becomes a matter essential to such result. This is strictly true in physics, nor, can it be less so, according to physiological law.

That morbific agents do produce such molecular changes or conditions in nervous structures as to modify or change their normal impressibility and force, we think will not be denied, for disease of the nervous tissue is as well established as any fact in pathological anatomy. And from the office and functions of the neural system, it is not unreasonable to conclude that many non-cognizable morbific agents make their first and chief attack upon integrity, and thus, directly induce perverted nerve force, while other *materies morbi* indirectly produce similar results.

Future research in biology may *possibly* give us more definite and practical views as to the effects of external impressions upon the living material, or bioplasm, which by virtue of its own endowments determines every vital act; yet, so far as we now understand, we get no centric expression except through the medium of the nervous system. We may concede that the nerves are conductors only, without possessing any inhering sensor or motor qualities; that the living or bioplasmic element is the source, *per se*, of every vital phenomenon, yet the fact still remains that nervous integrity is essential to all normal or living processes. Hence diseased nervous structures, inducing perverted nerve influence, are competent to play an important part in trophic, as well as centric disorders. This is quite the reverse of the views held by Blumenbach and others, "that each organ is endowed by a *vita propria* peculiar to itself" and should be treated accordingly.

Properly, we all recognize the importance of looking well to organic and functional processes, and of accurately observing their reflex phenomena, yet we may fail to estimate the *pre-eminent* influence of nerve impressibility as a determining and fruitful source of numerous disorders, and the most direct avenue by which to successfully combat many local, as well as the so-called vital maladies. Neural integrity then, the axis of all vitality, is a *sine qua non* in all living processes, and to sustain nervous integrity is to conserve vital force.

A BALLADE OF Y^e BLUE GLASS.

CANTO 1ST.

A very scientific gent was Doctor Vitreous Browne,
Who practiced his vocation in a certain Eastern town;
A man of brain and culture, with thoughts above a pill,
Famed for his erudition and most audacious s—kill.

Fond of all new ideas was Doctor Vitreous Browne,
Who often rode a hobby, and was apt to ride it down.
When phlebotomy was all the go, it may with truth be said:
The Doctor fiercely shouted "Blood!" and all his patients bled.

When hypodermics first appeared, t'was Doctor Vitreous Browne
Who purchased an imported one; while with a horrid frown
He used his little morphine punch for curing every pain,
And many a patient fell asleep—and never woke again.

When batteries were introduced t'was Dr. Vitreous Browne,
Who bought a silver mounted one, paying for it fifty pound;
And taking every patient out would confidently tell "em"
He'd cure with electricity their soft'ning cerebellum.

But why prolong in fearful and awfully jingling rhymes
How learned Doctor Vitreous Browne kept even with the times.
Trying every new invention e'er discovered 'neath the sun,
Until finally he landed on rather a Pleasant-on(e).

For it happened one spring morning, as Doctor Browne arose
From the nightmare dream of glory which lulled his sweet repose,
That an item in a journal, left daily at his door,
Awaked his curiosity as he perused it o'er.

Twas this: "It's been discovered if rays of sunlight pass
Through the atomic elements of cerulean colored glass,
That, acting on the texture of any living thing,
T'will cause a century plant to bloom, sick mocking-birds to sing."

A joyous smile lit up the face of Doctor Vitreous Browne,
As he gathered up his newspaper, hurried on his dressing gown;
And at his morning coffee kept wondering more and more
Why he had not thought of this new idea long before.

"T'will cure cramp colic, phthisis, mumps, and the bleeding pile,
Cause secretion of the gastric juice, stir up the gentle bile,
Heal cancers, ulcers, fistulas; in fact, we'll now prepare to
Offer it as a panacea for all ills flesh is heir to."

The Doctor was delighted as he went reading on
Of those wonderful discoveries of General Pleasanton;
And when at last a sudden exclamation he bestowed,
T'was, "I'll try on the blue-glass dodge, if I don't, I'll be—blowed!"

CANTO 2ND.

A week has passed and now behold a transformation new,
The noble Doctor seated in a room of azure hue,
Where the drapery, carpets and furniture by the light of windows
A lovely scene of ultramarine, tinted with indigo. [glow,

A tap is heard upon the door. "Come in!" the Doctor says,
Waiting to see his patient with most expectant eyes;
Enter, a silk clad female with waist both long and slender,
Her clothes denoting luxury, her pursed lips legal tender.

"This I suppose is Doctor Browne?" The Doctor nodded slightly.
"Please take a chair," and "Please sit down," he added most po-
The lady gazed about the room for moments one or two, [litely.
And then she murmured sadly: "Doctor, I am very blue."

Then spoke the worthy doctor: "Madam, if that is all,
More closer to the window, where cerulean rays do fall;
If you feel blue, I'll cure that symptom up instanter
On the principle "*similia similibus curantur*."

Then quoth the lady quickly, with signs of rising wrath:
"It was not my intention Doctor, to consult a Homeopath;
My husband is a pork-packer, and you may rest assured
That, though not very Regular, I won't be sugar-cured.

" Listen to my tale of woe Doctor. Let me pour out my distress.
If I had my proper title, I should be a *Baron–ess.*
Though for fifteen long years married, I, Angeline McCabe,
Have waited all in vain Doctor, shall I say it?—for a babe."

Then the sympathising doctor, with a blue blush on each cheek,
Controlling his emotions, managed at last to speak.
" O lady fair! dispel your grief, let all your sorrows pass;
I'll work a miracle for you by means of the blue glass.

" Recline upon yon sofa, and let the sunlight play
On your most slender abdomen with its health-giving ray;
T'will tone up all the organs, strengthen the circulation,
And possibly may add one to a future generation.

" In the meantime I'll leave the room, locking the door behind,
And in the course of half an hour you certainly will find
That very strange phenomenon will surely come to pass.
Dont mind your feelings! shut your eyes! and dream of the blue glass."

The Doctor left his patient there for fully half an hour,
And on returning found that she was blooming as a flower.
" Now go right home," he kindly said, " and you be sure to-night
To kiss your husband, Angeline, and tell him its all right."

CANTO 3D.

Three-quarters of a year have passed, and the entire town
Unite in singing praises of the learned Doctor Browne;
For no such grand and wond'rous cure was e'er to mankind given
Since the episode of Sarah and the miracle of Heaven.

No more shall childless women wander through this vale of tears,
Longing for the realization of the hopes of younger years;
For the sunlight's rays of gladness throw their glory over all,
And each threat'ning matrimonal storm shall end up in a squawl.

The happiest of mothers, fair Angeline McCabe,
Hums out a sweet-toned lullaby over her lovely babe,
Whose cerulean complexion and orbs of pure sky blue
Afford a pleasing contrast to its hair of azure hue.

T'was thought the babe, when first born, would soon give up the
For the very simple reason that it was cyanosed. [ghost,
But learned Doctor Vitreous Browne, with a due amount of brass
Showed that the baby's color was owing to the glass.

" What matter if the child was blue from toes to top of head,
We much prefer that color to horrid cardinal red."
Such are the words that from the lips of gentlewomen fall,
Who much prefer a blue baby to nary a babe at all.

And the great discoverer Doctor Browne from his investigation,
Affirms he's found a remedy against foul miscegnation.
He states, that, "colored wenches, exposed to a clear light,
Will certainly have progeny, said offspring being white."

Now working on this theory, t'will surely come to pass,
That the complexion of the coming age will all depend on glass;
That the women of the future will be influenced all the while
In their choice of colors by the "very latest style."

Thus for some years the color will most certainly be pink,
Or, if in mourning we are plunged, a color black as ink.
Orange or purple, red or grey, will frequently be seen,
And sometimes, like the Irish, we'll be "wearing of the green."

Perhaps some bold American, with patriotic view,
May stripe his lovely baby in red, white and blue.
But no matter to what color the fashionable run,
Let us all join in songs of praise to Browne and Pleasanton.

Later.

A horrid tale of calumny floats on the scandalous air,
And cause all the Doctor's friends to curse and tear their hair;
On account of intimations dropped by some libellous clown,
That the little blue-glass baby hath the lineaments of Browne.

Art. 3.—What Influence does a Syphilitic Father exert on his Offspring?

By FRANCIS DOWLING, M. D., Cincinnati, O.

Paracelsus was, I believe, the first to call attention to the fact that syphilis is capable of being transmitted from parent to offspring, although Conrad Reitterius, in 1508, called attention to the matter in his ode addressed to the Virgin Mary, beseeching her to arrest the ravages of this malady; but in the lines he seems to have confined himself to mention of infection by nurses only:

"Non puer tutus teneris in annis,
Quem suae lactat genetricis uber."

A little later Augur Ferrierus enumerated three different ways in which transmission of the disease could be effected: *firstly*, through the semen of the father, who at the period of the mother's impregnation, was affected with syphilis; *secondly*, through the maternal germ furnished by a syphilitic mother at the time of impregnation; and *thirdly*, through the medium of the mother's blood in cases where she becomes affected with the disease after conception has taken place. Somewhat later Boerhaave, Astruc, and others, accurately portrayed the different modes of communication from parents to children, and mention that we ought to discriminate between cases of genuine hereditary transmission and those in which the disease is communicated *at* or *after* birth. Hunter asserted, that hereditary transmission never occurs, and that the syphilis of the child, as well as of the adult, is always the result of infection. This opinion of Hunter was the result of his experiments, which went to prove the secretion from a *primary* sore alone contained the contagious poison; and as he denied the possibility of an infection from a secondary affection, he likewise had to deny the possibility of a communication of the disease through the semen. He could imagine it possible for a child to be infected while in its mothers womb *only* in cases where the mother at the time was affected with primary syphilis, her blood absorbing some of the secretion from the sore, conveying it to the fœtus and thus infecting it in a direct manner. Although this opinion of Hunter was never corroborated by clinical experience, still the influence exerted by this celebrated surgeon over the medical men of his day, induced such men as Abernethy, Brodie and others to acquiesce to his views.

Swediaur, among others, opposed this opinion of Hunter, and claimed that the disease could be transmitted by heredity as well as by infection from a primary sore. The latter was also the first to assert that the influence of the semen of a syphilitic father was the almost exclusive one, in transmitting the disease to the child, and knew no authentic case, in which the disease was transmitted through the mother. May* and Bednar† corroborate this latter assertion. Cullerier on the other hand, stated that hereditary syphilis is always propagated by a syphilitic mother. Other eminent writers again claimed that both parents exert an influence on the offspring, as far as the transmission of this disease is concerned, which is no doubt the correct opinion, as it is borne out by clinical experience, which after all is the most reliable factor in calculating problems of this nature. The trouble seems to be, with many of our most celebrated writers in every department of medicine, that they devote too much of their attention to the scientific side of the subject, relying for the diagnosis of maladies, on the results of microscopic investigation together with those obtained through experiments on inferior animals, instead of relying on the results obtained through an honest an persevering study of the morbid symptoms at the bed side. To be sure I do not argue against scientific means of investigation, for it must be ackonwledged that they are useful in their place, but the tendency of the age seems to be to carry matters to extremes in this direction.

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* Zeitschrift der Kais. Konig. Gesellschaft der Aerzte in Wien.

† Krankheiten der Neugebornen und Sæuglinge. Wien, 1853.

This conflict of opinion continued down to the commencement of the 18th century, when a special hospital was founded at Vaugirard, for the reception of pregnant women, affected with syphilis, and their infants; from this time the possibility of obtaining more exact statistics and on a larger scale than formerly, gave a new impulse to the study of hereditary syphilis, which has not since abated.

Having given this brief historical outline of the disease under consideration, let us now proceed to the consideration of the questions pertaining more directly to the share that each parent individually contributes in the transmission of the disease to the progeny. And first comes the question: *If the father alone be effected with syphilis at the time of impregnation, what will be the effect on the offspring?*

Although Vassal* denies that a syphilitic father exerts any influence in transmitting his disease to the fœtus in the act of impregnation, still the weight of evidence goes to prove that in the majority of cases of hereditary syphilitic transmission, the starting point is really due to the father, who, at the time of the mother's impregnation, may have been either affected with syphilis, or partially free from such through an incomplete cure. Of course this implies to cases in which the mother, previous to her impregnation was free from the disease.

The length of time the father has been affected with the disease, however, as well as the previous treatment which he may have undergone, will exert a modifying influence on the transmission of the disease to the child and mother, and hence the following points are to be remembered: firstly, *in cases where the father is at the time of the mother's impregnation effected with either primary or secondary syphilis, mother and child will be almost certain to contract the disease.*

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* **Memoir sur la transmission de virus venerien de la mere a l'enfant.** ***Paris.***

A previously healthy woman, on being impregnated by a man affected in this way, will likewise contract his disease at the same time. The result of this infection will not be made manifest immediately, for we are aware that the *primary* effects do not show themselves until from 3 to 4 weeks after the infection, and the *secondary* from 9 to 10 therefrom. About the end of the first month of pregnancy, therefore, the mother will notice a slight abrasion at the vaginal entrance or on the labiæ, which, however, often goes unnoticed even in cases where in addition thereto, an ulcer with hard base is formed, accompanied with swelling of the glands of the groin. In cases where the infection takes place on the neck of the womb, which very often occurs, a discharge from the womb will be the only symptom observed, and this will often be mistaken for a result of the pregnancy, and will attract little attention on the part of the patient. And thus the affair will go on until about the third month of pregnancy, when suddenly a rose colored eruption makes its appearance, and rapidly spreads over the whole body, followed by other symptoms of a syphilitic nature. The patient now for the first time suspects the nature of the disease, and consults a physician, who in turn verifies the suspicion thus formed.

Let us now see what will be the result of a conception taking place under such circumstances. The maternal germ, which, up to this time was in a healthy condition, is now vitalized by coming in contact with the male semen, saturated as it is with syphilitic poison. After this it is to develop in the womb of the mother, who in the mean time has likewise become infected with syphilis from the same source that infected the germ.

Here we have diseased seed planted in soil, so to speak, incapable of furnishing it with the amount of healthy nutrition necessary for its development, and consequently it may be readily imagined that it will perish at an early day. This is in reality what occurs, abortion generally taking place about the *third*, *fourth* or fifth month and in some instances later. In the latter case the child will be born alive, presenting the characteristic symptoms of syphilitic infection; it will be small, diminutive, emaciated, poorly developed, and will die in from a few days to a few weeks, presenting in its miserable, wrinkled, and dried up body the unmistakable evidences of its parents' sins.

In cases where the father, at the time of impregnation is affected with latent syphilis, that is one which has undergone partial but not complete cure, what will be the effects on the offspring? Experience teaches us, that, as a rule, syphilis is not contagious after it has passed to the latent state, but leads to other results. A marriage contracted by a man in this condition is generally devoid of issue; the wife either does not conceive at all, or soon after the marriage irregular hemmorrhages take place from the womb, causing one to suspect abortion; but on examining the discharge, no trace of such a condition will be found. Occasionally symptoms of chronic inflammation of the lining membrane of the womb make their appearance, or an obstinate leucorrhœa, in which event the wife will not become pregnant at all, and will become a chronic invalid. In a very small percentage of cases again the wife becomes pregnant, and singularly enough, she at the same time becomes syphilitic.

The following case which we take from the records of the syphilitic department of the General Hospital at Vienna, will illustrate this last mentioned point: Mr. P——, contracted a chancre, which, under appropriate treatment healed in about four weeks; soon after this syphilitic eruption made it appearance on the body, accompanied by irritation of the throat, and a few patches on the edges of the tongue and on the lips. The chancre made its appearance in February, 1872; from this date, up to September of the same year, the patient was under treatment, at the end of which time all treatment was discontinued, as his symptoms of secondary syphilis had evidently entirely disappeared. In the following November the patient married. In the January following, his wife showed evidences of impregnation having taken place, by the non-appearance of her menses, which had been irregular for the two previous months. During the month of March, following, symptoms of secondary syphilis made their appearance, and she was finally, in the eighth month of her pregnancy, delivered of a child which died three days afterwards, its body presenting the characteristic syphilitic appearance.

The facts above mentioned, being contradictory to the opinion of Hunter, viz: That secondary syphilis is not contagious, his disciples, besides recognizing the transmission of the virus from a primary sore as the only way in which the disease could be communicated, were finally compelled to admit another way, through the semen of a father affected with the disease. Another theory was manufactured to explain the infection of the mother, viz: That the disease was communicated to her from the child after it had thus been contaminated by the father's semen. Somewhat later many physicians of eminence declared in favor of this latter doctrine; among them may be mentioned, Diday Depaul, Acton, Tyler Smith and, more particularly, Hutchinson * of England. The latter, by an analysis of 68 cases systematically arranged, endeavors to prove that a man affected with latent syphilis, even in an intercourse of many years with his wife, infects her only in cases where she becomes pregnant with a syphilitic child. The disease communicated in this way from child to mother commences without any evidence of primary symptoms, does not even pass rapidly through the secondary ones, but is almost imperceptibly developed and often from the start appears in a tertiary form. The oftener a woman becomes pregnant under such circumstances, the more distinctive will be her syphilitic cachexia.

Now how can we explain the fact here mentioned that a man, apparantly free from syphilis, owing to previous treatment, conveys the disease to his wife, who in her part has no primary manifestations.

It may be explained in the following ways: The infection may possibly be communicated through the medium of the fœtus, consequently indirectly, or in a direct manner from the father through the medium of his blood or semen.

In support of the last mentioned theory, viz: the direct communication, the following fact will have considerable weight, viz: That the secondary symptoms in the mother make their appearance about the tenth week of pregnancy, just about the time they would make their appearance as a result of infection from syphilitic virus or blood. Infection from the fœtus would be likely to show itself in the mother at a much later date, consequently it would be fair to infer that infection in these cases takes place directly from the father to the mother, in some way. As stated above, this direct infection may be accomplished through the medium of the father's blood, for we know from experiments, that if a drop of syphilitic blood be introduced into the circulation of one free from the disease, it will nevertheless produce the original malady; but the same

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* **Medical Times, London, 1856.**

experiments demonstrate that the drop of inoculated blood, like a drop of inoculated syphilitic matter, will always produce a primary sore at the point in which it may be introduced. Here, this does not take place. Although an infection through this medium is possible, still it can only occur in rare instances; for if this were the usual mode of communication, then the infection of the wife would be accidental, and would take place without any regularity, as far as the commencement period of pregnancy is concerned. Facts contradict any such assertion. All the circumstances attending such an infection, point to the period of conception as the most probable time at which it takes place. The semen of a syphilitic father therefore, which under ordinary circumstances is harmless, as far as conveying the disease to his wife is concerned, is capable of infecting her if she become pregnant.

Suppose the secondary syphilis of the father has at the time of marriage become further weakened, owing to lapse of time and previous treatment, but has not yet reached the tertiary stage, what will be the effect on the offspring? Here the latter will be affected, but the wife will escape.

Since the time that Astruc first asserted that a woman might give birth to syphilitic children, without herself being syphilitic, many physicians have not only considered this as of frequent occurrence, but furthermore as the rule governing the transmission of hereditary syphilis; and Putegnat * thinks that one must be blind to deny this. Swediaur went so far as to assert that hereditary syphilis is always transmitted by the father, and never by the mother. Zeisl † in Vienna, says: "by far the largest percentage of children, who may present syphilitic symptoms at birth or soon after, are indebted for this heirloom to an unscrupulous father, or one who is at the time of marriage ignorant as to his physical condition." That men affected with secondary syphilis are capable of procreating syphilitic children without communicating the disease to their wives, is an occurence daily witnessed. Trousseau ‡ thinks that cases are of frequent occurence, in which men who have been affected with syphilis, 4, 6 or 8 years, procreate children with syphilis, without infecting their wives.

Now if the statements of these authors were undisputed, then no one would doubt that the transmission of hereditary syphilis takes place through the semen ; but unfortunately this is prevented by the testimony of other authorities, who assert the directly opposite. While Bouchert * thinks that the exclusive influence of the father is untenable, from the fact that the mother will almost always during her pregnancy present symptoms of syphilis, therefore, it will be impossible to determine exactly what share each of the parents bears in transmitting the disease to the child. Cullerrier † likewise says, that in an experience of many years, he never saw a child, which at birth or soon after was affected with syphilis, whose mother did not likewise present unmistakable evidences of recent or old syphilis. He therefore denies the possibility of a direct transmission of the disease from father to child, and thinks that if the mother be not infected, the child will likewise escape.

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* Histoire et therapeutique de la syphilis des nonveau-nes. *Paris.*

† Jahrbuch fuer Kinderheilkunde, und phys. Erziehung. 1857.

‡ Archives generales, 1854.

Owing to such a diversity of opinion concerning such an important question, in order to throw any real light on the subject, it will be necessary to submit the facts to a careful examination. We will then see, that while many of the authors were correct in their diagnosis, their inferences were palpably incorrect.

Let us in the first place examine the statistics furnished by Dr. Bednar, ‡ formerly physician to the extensive Foundling Hospital, at Vienna. Out of 119 syphilitic children that came under observation, 7 were prematurely born ; 2, delicate twins ; 22, well developed ; 29 were tolerably well nourished; 45 well nourished and vigorous. One child was affected with symptoms of syphilis at birth, in 20 they made their appearance between the 5th and 14th day, and in 15 between 3rd and 4th week. In the remaining 83 children, during the 2nd, 3rd, 4th and 6th months. Among these children were 27 vaccinated ones, in whom the syphilitic symptoms made their appearance in from 7 to 27 days after the performance of the operation. In all of the cases mentioned above, the condition of the father's health was unknown. Of the mothers, 20 were found to be affected with syphilis at the time of confinement. The other 99 women were either perfectly healthy, or affected with non-syphilitic diseases; and even 36 out of this number remained in the institution as nurses, and curious to say, even the children of

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* Traite des maladies des enfants nouveau-nes.

† Archives generales, 1854.

‡ Die Krankheiten der Nuegebornen und Sæuglinge. Wien.

these latter were affected with hereditary syphilis during their stay in the institution.

From these statistics, Bednar draws the following conclusions: *Firstly*, that hereditary syphilis in new born children is very rarely developed at birth, and more rarely during intra-uterine life, but most frequently between the 2nd and 3rd months after birth; *secondly*, that in the majority of all cases of hereditary syphilis the disease is transmitted to the child by the father, without at the same time affecting the mother; *thirdly*, that on the other hand, a woman laboring under constitutional syphilis, is thereby rendered incapable of conceiving while in this condition, and consequently she is only capable of transmitting the disease to her children in cases where she becomes infected soon before or soon after her impregnation.

With all courtesy to the Doctor above mentioned, I must say, however, that in my opinion his conclusions are somewhat hasty and premature. Bednar concluded that the fathers of 99 children must have been syphilitic on no other grounds, than that the mothers were in a healthy condition! Instead of jumping at this conclusion from such shallow data, he should have commenced by investigating whether the syphilis of the children was in reality *hereditary*. We kindly volunteeer our assistance in this respect and will make use of his own statistics for this purpose. Twenty mothers were found to be syphilitic at the time of confinement, and in just *twenty* children syphilitic symptoms were developed inside of fourteen days after birth. The remaining 99 mothers were on the other hand perfectly free from syphilis, and likewise, 99 children were at the time of birth healthy and vigorous, but became affected with syphilitic symptoms at a later date, a few as early as the third or fourth week; the largest number, however, were affected between the third and fourth month, and even later. Is it not perfectly evident then, that the first 20 children, who were born emaciated and incompletely developed, were the only ones out of the number who were affected with hereditary syphilis? Is it not also evident that they were the children of the 20 syphilitic mothers? While the other 99 healthy and vigorous children were the offspring of the remaining 99 healthy mothers. If all these 99 children, at a later date during their stay in the institution, presented symptoms of syphilis, the disease was not probably contracted through hereditary transmission, but some other way, as for instance by vaccination, or by daily intercourse with the other syphilitic inmates of the institution.

How, therefore, could the director of such an institution have fallen into such a palpable error? His statistics furnish another powerful argument in favor of condemning those institutions which the democratic spirit of the times in the Old World is demanding as a social necessity, when it has long since been demonstrated that foundling houses in all localities, and at all times, have been nothing more than licensed, and in addition thereto, very expensive slaughter pens for innocents. The mortality in many of them, as in Florence, Naples, Milan, Dublin, Petersburg, Moscow, etc., has mostly reached 50 per cent. for the first year, and 70 to 80 for the following. (During my residence in Vienna, in 1872 and '73, I gave a full report of the statistics from the large foundling house in that city; and if my memory serves me right, the mortality then was something over 80 per cent.)! It will be seen therefore, that institutions of this nature, far from supplying an advantageous social requirement, are in reality calculated to act as convenient demoralizing luxuries; for the number of foundlings have often exceeded the number of illegitimate births in a given place. The frightful state of affairs in this respect may be learned from a perusal of Raumer's "Letters on Italy." Institutions of this description, instead of being called "foundling houses," might be very appropriately designated as "*pest houses*" of the first order!

Many other observers in this department of medicine corroborate the opinion of Badner above mentioned, but while they are no doubt correct in their opinion, "that a father may infect his offspring without at the same time conveying his disease to his wife," they all, in citing statistics of a similar nature to Badner's, seem to have fallen into the error of concluding that all the cases of infantile syphilis observed, were hereditary on the father's side, simply because the mother was healthy, overlooking entirely the possibility of the children having contracted the disease in a *non-hereditary* way; as for instance, through vaccination and contact with others similarly affected, as previously mentioned.

In this connection it will be well to consider the question of masked syphilis, which has been agitated by some writers of distinction, viz: May hereditary syphilis fail to produce its first symptoms until several years after birth? Although in by far the largest majority of cases, the first symptoms of hereditary syphilis make their appearance inside of the second or third month after birth, still there are exceptions to this as well as all other good rules. Bertin mentions the case of a child, born of an infected mother, who presented no symptoms of syphilis until after it had been weaned, and Bardinet relates a case in which they appeared at the fifteenth month. The following case came under my treatment some time ago: A young man, aged 19 years, presented a well marked copper colored eruption over the whole surface of his body, together with mucous patches in the back of the throat and on the sides of the mouth. He stated that he had never had a chancre, and on examination I could find no trace of one. I would be inclined to think that the symptoms here proceeded from infection, the primary results of which had been either concealed or overlooked; but for the fact that another member of the family, aged eight years, presented a similar syphilitic eruption on the arms and chest, not so extensive however as in the first case. Here the presumptive evidences of hereditary syphilis were very strong, although both of the parents denied ever having had symptoms of syphilis. Balling* likewise states, that he was consulted by a youth of about 16 years, the subject of a syphilitic ulcer of the throat and of ulceration of the bones of the nose. This youth appeared to be very innocent, and in spite of all kinds of questions, and a most careful examination, no personal source of this infection could be found in him. The father confessed that about the time when he begat him he had himself symptoms of constitutional syphilis. The youth was cured by the administration of anti-syphilitic remedies. Prieur † says: "The treatment of the parents before and during pregnancy may prevent the constitutional affection from appearing in the new born child; but they may afterwards show themselves, thirty years after birth, without the child having ever had primary lesions." If such cases do occur, they must be very rare, and it would not be good policy on the part of the physician to encourage any such doctrine, for if it were generally promulgated, it might do an immense amount of mischief by serving as a cloak for all who might happen to stray from the path of moral rectitude, and contract a disease thereby. Sons would then plead innocent of contracting their disease, and would, without ceremony, throw the whole blame on their fathers; and every woman who might happen to infect her husband, would plead innocent and say: "that it was a family disease." The social and moral consequences of the publication of such a theory are evident.

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* Ueber angeborne und ererbte syphilis.

† Thesis de Paris, p. 30.

Now we come to the last stage of syphilis, viz: the tertiary, and will ask, *what will be the influence exerted by a man, affected this way, on his offspring?* In the transformation which takes place from the *secondary* into the *tertiary* form of syphilis, it is impossible to establish an exact boundary line between the two, as the changes which take place in the one, being transformed into the other, occur slowly and gradually, and hence the exact period at which one merges into the other, cannot be actually stated. When the change is completed, however, when the eruptions on the skin and mucous membrane give way to ulcerating sores in the same localities, when affections of the bones and muscles, as well as the internal organs, set in, then the reproduction of the specific contagious matter will have ceased, and infection of either wife or offspring need no longer be feared.

But, if a father affected with this stage of syphilis is no longer capable of transmitting the disease to his offspring, he is capable of transmitting, however, a constitutional type, which renders the offspring inheriting it particularly susceptible to the influence of other diseases. One of these in particular, scrophula, seems to have a particular affinity for subjects of this description, and it is quite probable that the seeds from which the affection is developed are as a relic of the father's syphilis, transmitted to his offspring with his constitutional impression. Ricord* states that the influence of the tertiary form goes on decreasing until it becomes at last only one of the hereditary causes of scrophulous affections; therefore, according to his view, it is tertiary syphilis of long standing that gives rise to scrophulous affections in the children of parents affected in this way. Baumés states that this form of syphilis tends to impart to the economy a lymphatic or scrophulous bias; to produce in the body the tubercular degeneration, which so often shows itself in scrophulous subjects. Hufeland, Mahon and Bertin, three very able writers on this subject, believe in the power of this stage to produce scrophula in the children. Baumés† reports the following interesting case, illustrative of this point: Madam D—, a widow of sanguine temperament and robust constitution, married a lymphatic husband who, after a chancre contracted ten months before marriage, continued to have periosteal pains and a syphilitic eruption on the forehead and hairy scalp, which symptoms disappeared and reappeared at intervals. He married in this condition, which continued for nearly eight years, at the end of which time he died of chronic pneumonia.

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* Lettres sur la syphilis.

† Precis. theor. et prat. des maladies venerien; tome 1, p. 178.

A first daughter resulting from this marriage presented the temperament, constitution and features of the mother. With the exception of some eruptions on the scalp, in early infancy, she has always been healthy and is at present married.

A second daughter, who presented on the contrary, the temperament, constitution and features of the father, had, when some months old, a discharge from both ears, with scrophulous enlargement of the glands of the neck. There afterwards appeared copper colored patches on the arms and legs, and a pustular eruption on the forehead. She was afterwards affected with palpitations of the heart, lateral curvature of the spine, painful menstruation, and finally died of pulmonary consumption at the age of fifteen years.

The facts just related, and many others of a similar nature which could be cited, go to place the question beyond doubt, that the tertiary syphilitic condition in the father is capable of generating scrophula in the children, although its appearance will depend on many circumstances, among which may be mentioned, the temperament of the father, the parental resemblance of the child, influence of treatment on the parents, etc. All of these modify its influence, hence it is that we often witness one child in a family affected with scrophulous symptoms, in consequence of this condition in the ancestors, and then again another child perfectly healthy.

In this connection the question suggests itself: Is scrophula contracted in this way identical with ordinary scrophula? There is a diversity of opinion in regard to this point; some asserting that on account of the symptoms being more general in scrophula resulting from tertiary syphilis than in the strict type of scrophula, it consequently cannot be the same disease. Other authors again claim its identity with the latter, and explain that although the manifestations which first make their appearance in consequence of syphilitic transmission are much more general, they ultimately tend to assume the character witnessed in the normal type.

Whatever may be the theories advanced in regard to this question, clinical experience shows that there is often, if not constantly, a marked difference between the symptoms arising from pure scrophula and those resulting from tertiary syphilis hereditarily transmitted. In the former the derangement confines itself principally to a knotty enlargement of the glands, affections of the bones, and eruptions. In the latter the derangement is much more general, all the functions are languid, physical development is slow and imperfect, digestion is often chronically deranged, plumpness, that criterion of health in children, is always below par. The complexion is pale, the flesh flabby, the hair is scanty, and the child is predisposed to many diseases which healthy children enjoy an immunity from.

Maisonneuve draws a distinct line of demarcation between true scrophula and this latter affection, which he terms *scrophuloid.* I am inclined to think, that, although at the first onset of the disease in being transmitted as a result of tertiary syphilis in the parents, it may not exactly conform to the typical form of scrophula, but that in the transformations which it undergoes, in passing by hereditary transmission from the blood of one generation to that of another, it finally arrives at a point where it merges into the form of true scrophula. The question is at any rate an interesting one, and opens up a large field of investigation to the social economist, the legislator and physician, and all interested in the welfare of individuals and the perfecting of the human species.

In conclusion, an important question is suggested, viz: Is a man who has had symptoms of constitutional syphilis, or even a chancre, ever in a position to marry without danger to his future progeny? This is an important question, as it involves the future happiness and welfare of a large number of the male population of our communities. In answering this question, when put to me by patients, I am in the habit of making the following distinctions, instead of giving an absolute *yes*, or *no:*

In cases of simple chancre dating back a year, if not followed by constitutional symptoms—marriageable.

In cases of true chancre, followed by constitutional symptoms, however slight they may be—not marriageable until after having been subjected to appropriate treatment for the period of from eight months to a year, and after this an interval of two years to wait for a relapse; if none appear in the mean time, then I am in the habit of sanctioning marriage.

Art. 4.—Diseases of the Rectum. Ulceration of the Rectum.

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No. III.

The form of disease of the terminal portion of the large intestine which was the subject of the preceding paper of this series, is one that is very common and very painful, but fortunately, it is one that can be readily relieved when properly treated. At the present time, also, anal fissure is an affection better known and less neglected than heretofore. The form of rectal ulceration now to be considered, however, is one but little known. In the early part of its course it causes but little pain and scarcely any inconvenience—in fact, its symptoms are such that, in very many cases, the medical adviser may be led astray when consulted, and the patient remain a long time without suspecting that his rectum is the source of the distress which he has been led to ascribe to his "digestion," his "liver," or his "bowels." I have known cases in which, when the local lesion was revealed, it had progressed so far as to render medical treatment of little or no avail without the adoption of measures the patients would not submit to. The latter naturally enough could not help thinking that when they had been on their feet daily, pursuing their occupations in some instances without interruption through the whole course of the disease—and although suffering more or less annoyance all the time, yet never the subject of severe distress—that such measures as would compel them to remain in-doors for weeks, or months, and submit to painful operations with the knife, were certainly uncalled for, and much more serious than their case required. When such patients pass from the hands of the surgeon who has carefully examined the part at fault, and given an opinion based upon personal experience with similar cases, they occasionally fall into the hands of practitioners whose experience—while embracing many with somewhat similar symptoms—does not include a single well defined case of rectal ulceration. "Chronic diarrhœa," I well remember, was the diagnosis of a physician of good repute in New York in the case of one of my earliest and warmest friends in that city, who had suffered for more than two years with this disease. The subsequent development of what the patient thought were external hæmorrhoids led him to consult a surgeon; the latter insisted on an examination, and thus revealed the true nature of the case. But the physician under whose care he had been for so many months was not satisfied; another surgeon was consulted and another examination made. This resulted in confirming the diagnosis of the surgeon who made the previous examination. The well known surgeon who took part in the last consultation related to me afterwards the fact that this was the second case of severe ulceration of the rectum he had known the same medical gentleman to call "diarrhœa"—in the other, the diagnosis was made and adhered to, although the patient had just received the opinion of a very competent surgeon, based on physical exploration, to the effect that his trouble was a serious ulceration deep in the rectum. The consequences of the time lost, the false hopes engendered and the dissipation of confidence in professional ability are unknown in the last case; in that of my friend they were very distressing—he declined to undergo an operation, made use of palliative measures only, and in less than two years, was cut off by an intercurrent affection!

The following case represents so fully the more common phenomena of the complaint—and, moreover, is so clear concerning what in many patients is very obscure—that I have thought it worth detailing in full. The patient was a young lady, seventeen years of age, a resident of Brooklyn, in whom the morbid state of the rectum seemed to owe its origin to the influence of a violent cathartic, administered to relieve constipation of several days duration. The young lady was of a healthy habit, not subject to constipation, and ascribed the attack that seemed to cause the disease of the rectum to the very defective arrangements for responding to the calls of nature which existed at the house where she was boarding. She had been under my care for a number of months, suffering from chorea, and was convalescing rapidly, when, in compliance with my suggestion, she went to a small town on Long Island for change of air and scene. It was here that she unfortunately permitted herself to neglect the evacuation of her bowels, on account of the miserable arrangement of the conveniences of the establishment, which necessitated a disagreeable publicity whenever that function was performed. To relieve the headache, depression of spirits and loss of appetite from which she immediately began to complain, her hostess persuaded her to take three compound cathartic pills, on retiring. That night she was greatly nauseated; after suffering somewhat from pain in her stomach, her bowels moved violently and spasmodically. Her evacuations were very profuse —she strained almost incessantly. The tenesmus and tormina did not subside for several hours, after which she was greatly prostrated. She was compelled to keep her bed the two days next ensuing, and when I saw her on the third day, the lady with whom she stopped informed me that her last few passages were serous and bloody. In a few days however, under a course of tonic treatment she seemed to recover her usual state of health; her evacuations presented nothing worthy of attention, and it was not until sometime in September—nearly eight weeks subsequently—when I saw her again. The story she told was something like this:—Immediately after she got up, and was able to be around, her bowels had a tendency to move several times a day, especially in the morning. It often happened that she was compelled to use the chamber before she was through dressing in the morning, and if she had moved around much the preceding day, she would have to get up during the night for the same purpose. If she walked far in day time, she was conscious of an accumulation of fluid in the lower bowel which would be discharged involuntarily, if not evacuated as soon as noticed. In the latter case a thin, somewhat viscid and very offensive fluid was passed, not amounting to more than a tablespoonful in quantity. In the morning the quantity was larger, it was darker in color, and of the consistency of the white of an unboiled egg. More or less pain was seated deep between her hips, her bladder had lately become irritable, the small of her back was very weak and the seat of a distressing sensation such as she had never experienced before. When I explained to her parents the significance of these symptoms, and the probable nature of the case, they were anxious that such measures should be adopted as would spare their daughter the necessity of undergoing a physical exploration of the rectum. I accordingly laid out a plan of treatment based on the supposition of ulceration of the rectum, but the woman whose duty it was to administer the enema at night—which was one of the measures prescribed—blundered so sadly in the management of the old-fashioned pewter "squirt-gun" syringe she saw fit to use, instead of the india-rubber apparatus ordered, that I was sent for, in haste, early the next morning. The patient was in bed when I arrived and said that her nurse had hurt her very much the night before; that she had passed a little blood in consequence; but that her principal distress was the pain that had been brought on by the violent contact of the enema-pipe with the parts deep in her bowels. I at once proceeded to make a physical examination. At the posterior margin of the anus there were two shining thickened folds of skin, such as can frequently be observed about the anal margin in cases of cancer of the rectum; the sphincters admitted one finger without exciting much pain, and just above the internal sphincter, on the posterior wall of the rectum, could be felt a large rough, irregular depression, bounded below and on each side by a thickened, indurated rim, but extending upwards further than the finger could reach. The next day I employed a speculum and discovered that the lesion was oval in outline and extended more than two inches on the posterior wall; its lower border was fully three-quarters of an inch above the upper margin of the internal sphincter; and transversely it measured about an inch from edge to edge. The bottom of the ulcer presented one or two elevated points which were red, and near its borders there were stripes of red, but in general it was brown in color and presented a sloughy appearance. The base of the ulcer was hard and resisting—contrasting markedly with adjacent healthy tissues—the edges above and on each side seemed excavated, and the general look it presented was much like the dirty, lardaceous, glistening aspect occasionally seen in neglected ulcers due to varicose veins of the leg.

The date of the development of the ulceration, and its apparent cause are not always so clearly to be distinguished, as the foregoing history would denote. Occasionally, no cause can be discovered. Thus, a young gentleman came to me in 1872, saying that he had consulted a number of medical men relative to the nature of his disease, but he was not yet satisfied that an accurate insight into it had been obtained by any of them. He was very hypochondriacal, and furthermore, with the exception of a care-worn look, did not present the appearance of a man who had any serious organic disease. He alluded to a "dysenteric discharge" and a serous diarrhœa, and spoke of their alternating sometimes in twenty-four hours, but my attention would not have been called to his rectum, had he not mentioned the name of a professional friend who, he said, was certain that his disease was cancer of that organ. The closest inquiry failed to reveal any cause for the lesion, or to furnish any data from which the date of development could be ascertained, yet there was a large and rather deep ulcer, with everted, angry looking edges and a hard brown base, occupying the posterior surface of the rectum just above the internal sphincter.

In treating of the peculiar characters of anal fissure, the anatomical structure of the surrounding parts was dwelt upon, and the former were found to depend, in great measure, upon the manner in which the flaccid mucous and sub-mucous tissues of the anal outlet were embraced and compressed by the contractile substance of the sphincter ani. The alternate contraction and dilatation of the parts about the site of disease exerted a deleterious influence on the fissure, and gave rise to the inflammatory thickening which agglutinated the underlying structures. When the parts above the muscular ring at the terminal orifice of the large intestine are the seat of chronic ulcerative changes, the circulatory apparatus of the part is found to conduce to such a state of chronic venous congestion that the indolent nature of the ulcer is readily explained, This peculiarity of structure is a factor of the first importance when an attempt is made to estimate the influence of the various causes which combine in producing chronic ulceration of the rectum.

Cases in which the history points to a mode of origin in every essential respect similar to that detailed in the account of the young lady, are by no means rare. A careful investigation, in a number of my own patients, convinced me of this fact; while the account given of their cases by others, suffering from this complaint, rendered me quite certain that this method of originating the disease is much more common than is generally believed. The relaxed state of the lining membrane of the rectum which attends constipation is very easily demonstrated by a physical exploration of the part. When the bowels are regular in their action, and the daily evacuation takes place always at a certain time, the rectum is empty at all times, except during the few moments that precede a call to the closet at the regular hour. From the termination of the sigmoid flexure, at the junction of the descending colon with the rectum, to the sphincters of the anus, the walls of the rectum are as thoroughly in apposition as the walls of the œsophagus. The relaxation of the circular bands of muscular fibre at the lower part of the sigmoid flexure occurs whenever the regular time for emptying the bowels comes round; and this intestinal movement corresponds with the sensation which the person knows is the signal for defecation. The fecal matter passes from the sigmoid flexure into the upper part of the rectum, and, if the sensation then developed is heeded, and the person retires to the water-closet, the bowels are regularly evacuated. But this physiological warning is not an imimperative command—it is still within the power of the person to resist this call. As a general rule, a neglect to respond to this intimation is followed by a subsidence of the uneasy sensation, and the act of defecation can be postponed for from an hour to a day. In such case, the relaxation of the fibres at the sigmoid flexure and distension of the rectum are followed by an anti-peristaltic contraction in the walls of the latter; the rectum expels its contents into the colon and the fibres at the sigmoid flexure again contract. As a consequence of habitual neglect and irregularity, the rectum does not empty itself as at first, and the lower part of its canal becomes a reservoir for fecal accumulations. Thus, in such cases, instead of this organ remaining empty and collapsed, like the œsophagus, its canal furnishes lodgment to masses of excrementitious matter which should be evacuated. The evils induced are not confined to the organ at fault. The whole pelvic circulation may be deranged; external hæmorrhoids are developed, and internal growths made to bleed; while the secondary derangements in adjacent organs may be excited which will remain long after the removal of the local accumulation. One very common result, especially in cases where the patient has been of a regular habit of body, is for the unusual distension of the muscular walls to result in atony to such a degree that the whole coating of the intestine in the affected part hangs loose and flaccid. In such cases, the rectum is rarely completely emptied—as a rule, sufficient material remains to distend the loose, bag-like structures above the sphincters. Furthermore, the mucous membrane, and probably, all the submucous structures are deeply congested, and after an attack of constipation, quite a length of time must elapse before these tissues return to a perfectly natural state. One can readily comprehend the effect of a drastic cathartic in cases of this nature. and the only wonder is, that more damage is not done than is ever heard of. The explanation of this exemption from almost inevitable evil seems to be due to the fact that a patient in whom the rectal walls have been distended and congested by constipation, suffers so much from the action of a cathartic that the recumbent posture has to be assumed—a position favorable for the relief of the structures endangered. Otherwise, the lax, loose structures of the rectal walls, when relieved from distension, fall within the grasp of the anal sphincters, where they are violently compressed and it may be strangulated. These tissues are already infiltrated from prolonged venous congestion, and their condition is such that even a mild degree of mechanical irritation is prone to excite violent reaction. The fact so generally noticed in cases of rectal ulceration in which the patient has remembered the symptomatic phenomena, and can recall them in the order originally developed, that more or less hæmorrhage, together with deep seated pain in the rectum, were the result of the violent catharsis which followed the exhibition of remedies to relieve constipation, can be explained by supposing that the sphincters have inflicted more or less damage upon the relaxed, infiltrated and congested coating of the terminal portion of the large intestine. The number of these cases in which careful investigation will reveal the fact that such phenomena were among the earliest symptoms noticed, is quite surprising. Yet there are cases, as is illustrated by the history of the young gentleman whose case has been detailed, in which such symptoms are never noticed. The conditions which favor the development of this class of phenomena will be further treated of when the morbid anatomy of the lesion is discussed.

Whatever the cause, the symptoms of this form of chronic ulceration of the rectum are very characteristic. So closely allied and so marked and decided, indeed, are the symptomatic phenomena of this disease, that there is little danger of a mistake as to the nature of the complaint, provided the physician has ever before met with the disease in his practice, and the patient is ordinarily explicit in detailing his symptoms. The sub-mucous tract of connective tissue in the whole extent of the rectum, is deeply congested, the minute glands opening into that canal have the amount of their secretion vastly augmented, and the quantity of fluid poured into this part of the alimentary canal is so much in excess of that secreted in health, that much of it has to be discharged *per anum*. Part of this liquid furnishes the discharges which, from the time of their occurrence, are called "morning diarrhœa." This diarrhœa can scarcely be mistaken by one familiar with the phenomena of this form of ulceration. It is developed very soon after the inital symptoms of the complaint—the spasmodic diarrhœa and hæmorrhagic discharges, which, together with pain deep in the pelvis, succeed a period of intestinal atony and inactivity: phenomena such as are presented in the history of the case of the young lady, herewith detailed—and may continue during the whole of the disease. At first, this symptom occurs only in the morning and may prove troublesome only at that time. The amount discharged is then very small; as a general rule it is colorless, like the unboiled white of an egg, but less consistent. From the first, this liquid has an unpleasant, earthy odor and contains a very large quantity of calcareous matter in solution. The discharges contain not only the glandular secretion from the mucous lining of the intestine—augmented and altered, as already stated, by hyperæmia of the submucous tissues in which the glands are imbedded—but its volume is increased by the fluid which flows from the surface of the ulcer. Under the microscope, a drop of the mixed fluids reveals an immense number of lymphoid corpuscles which are not generally present in the discharges evacuated in the morning—those succeeding subsequent fecal discharges contain them in abundance. The character of this diarrhœa varies with the lapse of time. At first, occurring only in the morning, and presenting the characters described, it gradually assumes a more decided phase. The materials voided often resemble coffee-grounds, both in color and consistency—occasionally they are of a decidedly puriform character, The urgent desire to go to stool, so strongly marked on first arising in the morning, is but little relieved by what is passed. A burning and uncomfortable feeling, approaching actual pain, follows the movement of the bowels; tenesmus often accompanies it; and nothing furnishes relief to the constant sensation of rectal fulness which continually urges the patient to renewed efforts to secure a satisfactory evacuation of his bowels. The influence of the hot fluids taken with the first meal in the morning are often most satisfactory; frequently they induce a somewhat copious passage of thin colorless discharge, after which, relief is experienced. This result, so satisfactory at the time, and so much desired by the patient, seems to be due to the unloading of the congested mucous membrane of the part—the serous transudation which then occurs seems to be followed by contraction of the previously dilated vessels, thus relieving the hyperæmia of the parts, and dissipating the distressing tenesmus. In the early stages of the complaint, this relief lasts the whole day. It is at this period of the disease that so many mistakes in diagnosis are made. As has been so well stated by Allingham, the occurrence of griping pain and flatulent distension, renders the supposition that the case is simply one of diarrhœa of a dysenteric character a very excusable error. A careful analysis of the symptoms, provided they are detailed accurately and fully, will however, render such a supposition very unlikely, and with a patient of ordinary intelligence, an error in diagnosis is not commonly made.

The longer the duration of the disease, the greater the distress it occasions. A stinging, burning pain remains after each movement of the bowels, and the evacuation immediately after breakfast which was generally attended with relief during the early stages of the disease, no longer produces that effect. The tenesmus characteristic of the first motions in the morning, now remains all day; the quantity voided at each action is not increased, but the continuous sensation as if a foreign body were located in the lower part of the rectum makes the patient seek relief at the water-closet much more frequently than at first. A constant pain in the lower part of the bowel is another symptom developed after the ulcer has lasted some months, and with this pain is generally associated a localized site of soreness high up on the posterior wall of the rectum. The diarrhœa loses that peculiar character from which the name of "morning diarrhœa" was derived, and occurs as frequently in the latter as the fore-part of the day. Pains starting from the sore spot in the rectum shoot up into the small of the back and from thence radiate round the waist and down the thighs and legs; occasionally, severe throbbing pain is experienced in the rectum; the agony may become so severe as to cause the patient to take his bed and seek relief from narcotics. In such cases when the patient is careful and observing, the period of relief which occurs in from one to four days is accompanied by a puriform disharge from the rectum — a small abscess has formed in the walls of the intestine, run its course, and evacuated its contents without surgical interference. Late in the progress of the case, attacks of constipation are observed to alternate with paroxysms of profuse diarrhœa; the former will often occur in connection with the development of a small abscess, and the latter commence with the appearance of the pus which marks its rupture. The discharges in such cases are profuse, and consist of fluid fecal matter—a careful physical exploration should then be made, for such symptoms are indicative of an organic contraction in the calibre of the canal.

Physical exploration in any form of rectal disease rarely fails to reveal interesting anatomical appearances. The structures about the anal outlet merit careful study, and when such is bestowed upon them, the peculiarities of structure and function accumulated in that region will be found to repay the labor necessary to comprehend them. In order to construct a mechanical device by which fluids and materials of a consistency but little more dense than fluids could be retained in the intestinal canal without, at the same time interrupting the steady flow of the circulating blood through all parts of the mechanism, the intricate system of sphincters and valves is arranged in the rectum with an accuracy and neatness that naught but the most careful study will enable the observer to appreciate. Justice could not be done to the various plans employed to avoid compressing the blood-channels at those points where the muscular sphincters must exert compression in order to close the outlet of the rectum, were all the space at our disposal devoted to that purpose—this, however, will be alluded to again when the subject of hæmorrhoids comes up for consideration. The veins are not provided with valves; the whole weight of the column of blood from the anus to the liver falls on those canals. This peculiarity in structure renders the walls of the rectum especially liable to congestion at all times—particularly so, in cases where there is a lesion located in one part of its course. When great care is taken to preserve the healthy normal activity of the bowels, the rectum is free from congestion; its walls, below the junction of its upper part with the sigmoid flexure are contracted, empty and in close apposition. It is only when constipation, long neglected, pemits the rectum to become a reservoir for fecal accumulations, thus distending its coats, atonying its muscular tissues, and rendering its walls congested and its veins varicose, that the lower part of the intestinal canal fails properly to perform its functions and becomes so favorite a site for disease. In cases of this kind, a brisk cathartic may empty the large intestine and induce disease of the lining membrane by permitting the relaxed and congested tissues to fall within the grasp of the sphincters, where they are so violently compressed as to destroy their structural integrity. It is in this manner, as has already been stated, that ulceration of the rectum is most frequently excited. When once an ulcer has been developed, it, of itself, tends to derange the local circulation, and by the demands made upon neighboring blood-vessels, to keep up more or less congestion. Healthy repair is prevented in the varicose tissues within the rectum by many of the circumstances which render ulcers of the leg, in individuals suffering from varicose veins of the lower extremities, so tedious and persistent. It may be a misuse of the term to apply the designation "varicose" to the veins which return to the portal circulation, yet, as a matter of fact, the tissues from which these vessels convey the circulating fluid are placed in even worse circumstances than are those structures of the leg, the venous emunctories of which have become tortuous and dilated. The "varicose ulcer" of the leg derives its individuality from the disturbance in the nutrition of the part in which it is situated—in like manner, nutritive derangements in the walls of the rectum induce the peculiar ulcer of that part, now under consideration. The distance from the heart at which the varicose ulcer of the extremity is located, together with the disturbance in the return of blood from the structural changes in the veins, are supposed to be the main agents in developing the peculiar characteristics of that lesion. In the somewhat similar affection of the rectum, in addition to the very marked congestion of surrounding structures, there is the very important fact that the blood which circulates through the hæmorrhoidal veins not only arises from a capillary circulation on its peripheral aspect, but empties into a capillary network in the liver, before it reaches the venous reservoir of the heart. In the leg, the local congestion is favored by the distance from the heart at which the lesion is located, and the defective character of the channels though which the blood must return, hyperæmia is favored by the relaxed state of surrounding parts, by the demand for blood make by the ulcerated surface and by the fact that the power of the heart is reduced to a minimum by the capillary network which exists at the peripheral and central ends of the hæmorrhoidal circulation. The surface of the ulcer is constantly irritated by the presence of acrid rectal secretions; the tissue changes induced, are of an unhealthy character, and readily explain the sloughy appearance generally presented by such lesions. The thickened and infiltrated margins are extremely prone to break down in abscesses, sub-mucous swelling is thus excited, and in some cases, these changes are attended by symptoms of stricture of the rectum. It occasionally happens that patients who have suffered for a long time with this form of ulcerative disease, are suddenly seized with chill, fever and diaphoresis, followed by all the phenomena of hectic fever. The resemblance such cases present to a not infrequent form of combined pulmonary and rectal disease may render the diagnosis obscure, but a careful exploration of the latter organ will reveal extensive suppuration in the parts about the lower half of the rectum. Following certain of these abscesses are different forms of rectal and anal fistulæ. External swellings such as were noticed in the case of the young lady, are hypertrophied and infiltrated flaps of skin. In some cases, as the disease progresses, the ulcer may extend almost around the rectum, and the organ assumes the character of an inflexible tube, through which the intestinal discharges trickle without interruption, In such patients, the sub-mucous tissues from the upper part of the ulcer, to the anal outlet, are thickened and hardened; there is gradual loss of the contractile power of the rectum and the immobility of that organ converts this part of the intestinal canal into a passive tube, through which, if fluids, the feces trickle, while if solid, they stick fast, and remain until dislodged and pushed through by fresh formations from above. The thickening and infiltration of the mucous, muscular and connective tissues, due to the attempts at repair, gradually encroaches more and more upon the canal, and narrows the outlet of the rectum. All control over the sphincters is lost—their tissue gradually undergoes fatty substitution, and during the last stages of the disease, no muscular fibre may remain about the anal outlet. In the majority of cases however, some intercurrent affection ends the patients life before the local changes become so far advanced.

The situation of the lesion is generally on the posterior wall of the rectum. In two cases only have I known the anterior wall the only part affected—in one case, there were two distinct ulcers, one occupying the part of the anterior wall of the rectum which corresponds with the *bas fond* of the bladder, and the other, the usual situation just above the internal sphincter on the posterior wall. The impression conveyed to the exploring finger, is very characteristic. The parts on the posterior wall, immediately above the internal sphincter, may preserve the soft, resilient feeling of health, and when they do, the contrast which the base of the ulcer yields is very striking. The latter feels hard, irregular—often, slightly nodulated. The edges are elevated, and the boundary between the hard resisting impression conveyed to the finger by the ulcer, and the soft, resilient touch of the surrounding healthy tissues, is very striking. To the eye, the parts about the ulcer seem hyperæmic, the edges are elevated and excavated, while the bottom of the ulcer is generally red, mottled with gray. The existence of more are less infiltration in the neighboring tissues will vary, of course, with the duration of the disease. When the latter is brief and the ulcer small, the amount of congestion is slight, and the appearance presented by the ulcer itself such as indicate only a lesion of short duration. The intensity of the ulceration varies in different cases from the extremely mild form just indicated, to the very extensive impairment of tissue such as occurs when the whole circumference of the rectum is involved. In this connection it is worthy of remark that any patient presenting the swollen tabs of skin noticed in one of the foregoing cases will be found to have some lesion of the structures of the rectum. They may exist in fissure of the anus —in such cases the inflammatory process extends directly from the hypertrophied fold of skin to the thickened layer of sub-mucous tissue in which the fissure is embedded. In ulceration of the rectum they are swollen and painful, tender on pressure, shiny, and covered with a thin ichorous discharge, of most offensive odor.

The treatment in cases of this disease will vary with the character of the patients constitution, and the condition of the local lesion. In the young lady whose case was detailed first, the plan adopted was something like the following: The nature of the case and its obstinate character were fully explained to the patient, in order that she might be the more willing to do what was required of her. Her diet was to be bland and unirritating—chops, steaks, milk and eggs, with potatoes were the main items. She was directed, also, to take a tablespoonful of cod-liver oil after each meal, and a goblet of claret wine was to be substituted for tea or coffee whenever she ate. In lieu of the exercise she was in the habit of taking daily, carriage driving was ordered. At 8 p. m. the rectum was to be washed out with care, and its walls subjected to the action of luke warm water to which tincture of the chloride of iron had been added in the proportion of a drachm of the latter to a pint of the former. A double tube, terminating in a bulb-shaped expansion with one tube ending at the top of the bulb, and the other communicating with a series of openings just behind the bulb—the whole being arranged with the idea of distending the flaccid walls of the rectum by means of the liquid thrown out through the opening on the top, so that a small amount would remain above the bulb, even after it began to return around this part, and find its way out through the openings communicating with the second tube—was the appliance I had constructed for the purpose of irrigating the rectum. This apparatus was connected with an ordinary india-rubber enema (Davidson's) syringe. By means of it, the rectum could be subjected to the action of the water, to which tincture of iron had been added, for half an hour every evening. Nearly ten days elapsed after this course of treatment was entered upon, before I saw this young lady again. An examination revealed the ulcer less than one third the size it was when first seen; its surface was red with healthy granulations; the walls of the rectum were tense and natural in appearance. The discharge, in the morning, was very slight, and not at all offensive. Absence from the city prevented my visiting her again and about two months after the last examination she called at my office at 124 East 27th St., in New York City to announce her complete recovery, She was under my professional care for choreic trouble for more than a year subsequently, but I had no occasion to repeat the physical exploration, as she never complained of either pain or discharge. She abandoned the injections after using them regularly for eight weeks.

In the general review of the symptomatology of diseases of the rectum which appeared in the February number of the LANCET I alluded to the case of a gentleman who had spent five years in an earnest endeavor to be rid of an ulcer on the posterior wall of the rectum, who had sought relief in Europe, and who, in his various journeys, had made the acquaintance of very many others afflicted as he was. He had undergone almost every form of local medication, even to having the edges and base of the ulcer freely slit open by a New York surgeon. When his case was undertaken it was with no very strong hope of being able to afford relief, much less effect a cure. My patient was but little more sanguine than myself, and had it not been for other influences, I doubt if he would have followed the course of treatment I suggested. This was in 1869. Having carefully investigated the lesion, I saw Mr. Ford, the Instrument Maker to Bellevue Hospital and had the apparatus made which was subsequently used on the young lady. This instrument, by the way, is a simple modification of the well-known O'Bierne's tube and possesses few, if any advantages over the latter. The train of ideas which led to the course of treatment adopted was very simple. On examination I found a thickened and infiltrated base to an ulcer of a circular form at least an inch and a quarter in diameter situated on the posterior wall of the rectum immediately above the remains of the internal sphincter—for the latter had been cut twice, and but little power of contraction remained. The surrounding tissues were deeply congested; the bottom of the ulcer was sloughy, and presented just that appearance which was James R. Wood's signal for the local application of liquor ferri persulphatis. In my inability to do anything else which had not already been thoroughly tried, I determined to make use of a weak solution of the liquor ferri persulphatis, and to persist in its use for a length of time. The patient readily acquiesced in the restricted diet on which I placed him—eggs, milk, meat and potatoes, with very little bread, no tea, coffee or tobacco—and accordingly on the following day, made use of an enema of a pint of warm water to which half an ounce of the Liq. Ferri Persulph. had been added. The bulb of the apparatus was inserted just beyond the internal sphincter, and by the aid of the Davidson syringe to which it was connected, the water was slowly thrown into the rectum. More than three ounces were thrown through the bulb before any returned. For more than half an hour the tissues of the lower bowel were subjected to the action of the water. The next morning there was a very decided diminution in the quantity of the matter discharged. That afternoon my patient was very enthusiastic, and made the application in my presence, expressing the confident hope that at last he was to be cured. One fact was very apparent—the fluid returned from the rectum when less than an ounce had been injected, while the day before, more than three ounces were lodged in the relaxed cavity before a drop came back. At the end of a week, a physical exploration was made, and the ulcer found smaller and healthy in appearance. From that time forward, the progress of the case was satisfactory in every respect. Before the lesion had healed completely, two other cases of this disease were under my care, undergoing the same plan of treatment—both friends of the first patient. But four months elapsed from the commencement of treatment until this gentleman was discharged, cured.

The fact that no two cases respond equally well to the same course of treatment is well illustrated in this affection. Of the three cases which came under my care in 1869, the first recovered entirely, one was materially improved, and doubtless would have been cured had he followed the course prescribed, while the other resisted the plan adopted, an abscess formed, and the aspect of the lesion changed completely. The bearing of syphilis on the prognosis and treatment of this affection is most important—I have since had reason to know that in cases of constitutional taint, no plan of treatment will prove successful which does not recognize the specific element and embrace measures to remove it. When the ulcer is of a purely local origin, and when the changes in neighboring tissues are not very extensive, the prognosis is best, and remedies calculated to keep the bowels open, to invigorate the system, combined with local applications such as irrigating the site of the ulcer with stimulating lotions, will generally result in a cure. In cases where the local lesion is very extensive, even without constitutional taint the prognosis is bad. In one patient of 54 who came under my observation in 1873, with great thickening of the intestinal walls, deep sloughing ulceration, complicated with stricture and fistulæ, it was hard to see how the prognosis could have been worse. Children, however, manage to recover from a degree of ulceration that would seem to be inevitably fatal in an adult—in such cases, the local application of a dilute solution of the tincture of the chloride of iron acts very kindly and promptly. The value of the different preparations of iron in cases of rectal ulceration when locally applied is very great. A course of treatment to be successful in these cases must embrace freedom from active muscular exercise. The solubility of the bowels must also be carefully attained while the passages must be kept perfectly free from irritating substances. No aloes shonld be given, and no vegetables allowed. The task of keeping the bowels open, under these circumstances is a very difficult one. So far as my experience goes castor oil is the best cathartic to use in this affection, but I now employ cod liver oil in every case and find that it not only keeps the bowels free, but that its nourishing properties are not less valuable to the system than its demulcent qualities are to the diseased tissues at the lower part of the large intestine.

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Art. 5.—The Psychology of Kathrina.

By THAD. M. STEVENS, M. D., of Indianapolis, Ind.

The psychological points of Shakespeare have been most ably treated by Drs. Tuke and Maudsly. A few other works have been analyzed in the same way. We propose to take portions of Dr. Holland's Kathrina, a text for the expression of our views upon certain questions of psychological interest.

The argument of this work (so far as it interests us) is the history of the hero from youth to manhood, also of his mother, and future bride—his father having died while insane. His mother evinced no signs of aberration of intellect until advanced in years. His wife, a religious enthusiast, dies as a Christian, and before death "views Heaven."

The first point is with reference to the insanity of the hero's parents. One would naturally be led to look upon that insanity in one of two lights, first viewing it as a real event clothed by the author in the garb of fiction; that such cases of both parents being insane do exist cannot be denied, but we incline to another view of the authors intentions, viz.: placing it as a case of *contagious insanity*—where this condition was "caught" from the husband by the "wife," not by means of an infecting germ, and of course not by "hereditary descent," but through the influence of mind upon mind, which, in accordance with laws however illy understood are known to exist. We know that in the intercourse of two individuals the mind of each is influenced by that of the other. Certain faculties, before dormant or inactive are aroused, the attention is directed in certain channels, or fixed upon certain objects, and the individual commences to study the subjects thus presented, and to investigate the paths opened up to him, and in proportion as his interest is increased the mind is molded into a greater similarity to that of his associates—his *imitative* faculties are called into play; and as we copy from the dress or action of those we observe that which strikes us as points of beauty or fitness, until imperceptibly we are conformed to and resemble those we thus admire. So our ideas and opinions, whether intellectual or moral, are brought to the same standpoint, and resemble in a great degree the ideal which has influenced us.

This subtle influence is immeasurably increased when our emotions are called into action, and friendship or love, which of themselves exert such a perturbating influence upon the mind, will when certain faculties are thus powerfully affected, increase them to a tenfold higher grade of activity and even urge them on to a point beyond that occupied by the original influencing mind; as family likenesses and lineaments are transmitted from one generation to another, in accordance with a law we do not understand, so a mind is thus molded upon the model of another in a way we cannot fully explain. A man and his wife, after years of intercourse, if they are not antagonistic, and if they are influenced in the same manner and strive to conform their ideas upon different subjects to those of the other, will as every one knows, become to resemble each other in character, in disposition and modes of thought, often—as the bent of mind in some degree controls and modifies the physiogomy—they will resemble each other more and more in person and in carriage.

What traveler has not observed that in cities, generally of moderate size, where the population is fixed and observations not confused by the elements connected with immigration that there is a certain similarity between the great mass of inhabitants in general appearance, and if we observe closely, we will find that this similarity does not depend upon family relationship or admixture of kin, but is to be ascribed to some subtle and illy understood effect of the principle spoken of above—photographing, so to speak, the attributes of the one upon the other, or rather perhaps, as the artist gradually molds and fashions his clay in conformity with the model, so the contour of the individuals gradually shape themselves into some degree of conformity, the one with the other. Insanity is but a higher degree of that perturbation of intellect we call eccentricity; take a mind—normal and healthy in its manifestations—as a standard, and every marked deviation from that standard, we term eccentricity, this may appear in so marked a dress that the individual may seem a strange being, wholly and unaccountably different from his fellows, and yet we do not call it insanity; yet if the same condition be increased to a greater degree it may reach the point where it manifests itself as, and assumes the name of—insanity, it being in either stage an abnormal state of the mind, one or more faculties being perverted by an illy proportioned degree of activity.

Apply now the above facts to the case in point; the mother, shaken as she would be by the unnatural, and to her, horrible death of the father (which was suicidal), had, through the effect of that shock, and by a continual brooding upon the event gradually permitted herself to take a sombre view of life; her grief heightened in effect by her lonely and isolated condition, acted upon her mind so that it was unable, first, to throw off those depressing thoughts and finally permitted it to sink slowly into a state of melancholy; her emotional nature was perverted, her mental powers weakened, from a strong and self-reliant, she became a weak and confiding woman, trusting and clinging to her youthful son for support, and just in proportion as her mind lost its resiliency and strength, so it was more easily effected by the events and thoughts which first led it to that condition; the one act that had shocked her, loomed up prominent to her sight and acquired new shapes of horror to her view, until the same propensity, gradually but irresistibly, and in accordance with the principles enumerated above, took possession of her and she was led captive against her will.

There are two forms of suicidal insanity, one in which the individual desires to end existence and perhaps feels an unaccountable pleasure in it, the other, in which he struggles against a power which impells him whither he would not go; the latter is the form in which it manifested itself in the mother. Nothing could be more graphic or more true to the known working of this form of insanity than the night scene, where the son, unperceived by the mother enters the room and views her struggling against this dread influence implanted there through her own long engendered and brooding thoughts, and heard the wailing of the soul to God—

> "O God," she said, "my Father and my Friend,
> "Spare him to me, and save me from myself!
> "O! if thou help me not—if thou forsake—
> "This hand which thou hast made, will take the life
> "Thou mads't the hand to feed.
> "O! Father! Father! Hear me when I call!
> "Hast thou not made me? Am I not thy child?
> "Why, this mad, mysterious desire
> "To follow him I loved, by the dark door
> "Through which he forced his passage to the realm
> "That death throws wide to all? O why must I,
> "A poor, weak woman"—

The derangement of her faculties gradually increased until the controling power of her will was wholly overcome and the dread impulse was unrestrained; the love and tenderness was supplanted by a horrible hate, and she accused her son of "crimes my language could not name, and deeds which only outcast wretches know."

Then the catastrophe, long fought against and dreaded, occurs; stealing forth in the silent night she with "guiltless hand took her life."

This was the *finale* of a suicidal impulse engendered, not through hereditary transmission, or by any fixed organic disease of the brain, but by means of the gradual cultivation of certain propensities or faculties.

The next we will notice are two points as brought to view in the death scene of the Christian wife—the interview with angelic beings, her mission back to earth—her advice to and pleading with her husband—the effect upon him, are all of interest psycologically.

The first is where the tingling of the bell in the sick room is heard by the husband as he reclines in the yard; he has been in a revery, and as soon as the sound reaches him there rushes to his remembrance an incident of the by-gone, when he chased the lamb, guided by the little bell around its neck—to the mountain heights, where having caught it he stops to view "scenes as beautiful as rests beneath the sun," that were spread out before him, and then comes up the words of his mother when upon his return he meets her.

"My Paul has climbed the noblest mountain-hight
"In all his little world, and gazed on scenes
"As beautiful as rest beneath the sun.
"I trust he will remember all his life
"That, to his best achievement, and the spot
"Closest to heaven his youthful feet have trod,
"He has been guided by a guileless lamb.
"It is an omen that his mother's heart
"Will treasure with her jewels."

And with it all a feeling of sublimity steals over him—a fear of some coming avenger, and he enters the house with strange forebodings:

"From dreams of retrospective joy I woke
At last, to the quick tinkle of a bell.
My wife had touched it. She had been asleep,
And, wakeing, called me to her side.

Another bell,
With other music, rang adown the years
That lay between me and the golden day
When, up the mountain-path I followed far
The lamb that bore it. All the scene came back
In a broad flash; and with it came the same
Strange apprehension of a mighty change—"

We think, viewing it as an actual occurrence, and speaking of it psychologically, the explanation is simple and that it contains no mystery—the tinkling of the sick room bell will explain it all; it found him in a state of revery, with his thoughts wandering to and fro, upon the as yet unremembered event, with the mind ready to be influenced by anything that should present itself to it, and by the laws of association of ideas, the sound of the one bell brought vividly before him the incidents connected with the sound of the other, we cannot completely comprehend, much less explain those laws; we only know that they exist, but how many links are in the chain—whether from bell to bell was one or a dozen, we can't know; the chase; the view from the mountain top; the return and meeting, and words of the mother, are flashed upon him with the known rapidity of thought, but why this foreboding of a coming disaster? Did it "cast its shadow before" in a sense which was unaccountable? We think not; the revery he was in, the remembrance of the past, and the events around him, all conspired to cast over him a feeling of gloom and sadness, in fact closely verging upon, if not entering a state of melancholia; a state which tinged all subsequent ideas, thoughts, which without this might have entered and brought no sadness, took to themselves a somber hue, and that which before might have been viewed with a careless eye and cast aside, sank deep and impressively into his troubled mind; he saw shapes and heard sounds of dread import.

The language of that bell he well knew; it called the wants of a sick wife, a wife whose changed condition was perhaps in his thoughts, the special wants he did not know; a feeling of fear and solicitude stole over him, what if there was some sudden danger? Some change which called promptness? Those were naturally the thoughts which would occur under such circumstances. He did not, nor could he, except as a matter of chance, know of the vision of his wife, or that she was about to recount to him the words that his mother had uttered long ago, and even had his forebodings taken definite shape it would have been but a strange coincidence. Thoughts are by an old heathen poet or philosopher likened to the motes that float in the atmosphere. Some are caught up, selected and retained. Others are taken at random and retained or cast off, still others glisten in the light for an instant, and then swiftly they pass out of sight, to come again, it may be at any time and when least expected. Impress the form of a substance upon a bright polished surface, remove again, but it leaves no visible trace. Still the mystic touch of moisture brings out the picture and it appears like the work of enchantment. It has been photographed and only awaits the proper agency to stand revealed.

Is it not upon some such principle that the "unconscious cerebration" of Dr. Carpenter occurs? or rather is it not a proper illustration of such a state? As no one can tell when the proper agency will act, every one is taken by surprise at the seemingly inopportune appearance of such ideas; it needs only the inciting thought and the grand law of "association of ideas" to form a "golden clue" that leads to the solution. The second point to be considered is the wife's vision. She ascends to mingle with bright throngs above; meets one who tells her, as one having authority, that she will be a permanent participant of those joys; but first she must return to earth and complete her work—that of leading her husband into the path that should conduct him thither. One who repeated the words his mother had spoken years before and which but a moment ago, at the tinkling of the bell, the husband had remembered. If we attempt to analyze the above conditions the question arises, did she know those parts which composed the body of her vision? Or was the form and words of the mother, for it was she, presented to the wife in a supernatural manner? Was her spirit indeed holding commune with the heavenly Host? The only true plan to solve such problems is to explain them upon rational grounds. The rational explanation of phenomena has taken the place of all others. The common and popular belief, viz.: that spiritual forms actually manifest themselves to the material senses under certain circumstances, is a relic of ignorance. The natural laws govern both mind and matter; how in accordance with such laws, shall we explain such phenomena as are found here?

The Rev. Dr. Barnes has advanced the opinion that inspiration is but a state or condition of the mind between genius and insanity; first the common mind, then genius, then inspiration and finally insanity. We may at first suppose that this would divest inspiration of its divine origin; but we must remember that divinity always manifests itself through humanity, if divinity speaks, it is by men, and no new organs are added. The faculties they possess may be increased by development, and it may be disproportionately so.

In genius the perceptive faculties are almost always more highly developed than in the common mind; the few see, what numbers blindly pass by; the mists that shut in the views of the masses, are pierced by the keen vision of the endowed; a fog, cold and murky envelopes the millions, and they grope through it gathering here and there a jewel which lies near them.

But genius seems to bear with it a lens that concentrates the beams of light, dispelling the gloom and revealing plainly the distant or before hidden object; and while the faculties are thus sharpened and enabled to catch the ideas and mold into shape those thoughts which the common mind cannot receive—we are apt to look upon it as something unaccountable and mysterious.

Somewhat the same conditions of mind no doubt exist in such cases, of which the one under consideration may be taken as a type. What caused this heightened development, this keenness of perception, need not be inquired into. Disease, without doubt, had much to do with it. At the same time the concentrated attention of the individual upon certain points, while all others were excluded, would have a great effect in procuring the same result.

This, in fact, was but a lower condition of the mental faculties that we find in insanity, a preternaturally heightened imagination, with hallucinations and illusions, where the functions of the nerves of sight and hearing were intensified, affected with hyperæsthesia; we may indeed with truth call it insanity, if we are careful to remember, that a name is *but* a name, and that a condition is known to exist, only as certain effects are manifested. The dying wife was evidently a monomaniac upon that one subject and her thoughts directed in the course they were, viz.: the belief in the appearance and presence of heavenly messengers—by the influence of early education and preconceived ideas, which taught her to give form, and therefore power of speech and action to spiritual beings, and the coming of such to waft the Christian spirit to its heavenly abode. It was thus that everything was ready in order for her heightened faculties and perturbated nerves to act, so that to her the sound of their acclaims and flutter of their wings were a reality.

We by no means assert that no communication takes place between the humanity and divinity; spirit may recognize spirit, but matter is only cognizant of its like. The psychic force is without doubt a creation of the imagination, and the supposed direct interview between spirit and matter is a pervertion of a higher faith, having its basis in ignorance, against which the correct teachings of the revealed word and of science will have to contend.

All history is full of examples of such convictions; the fathers of the desert, those anchorites of early Christianity, were fair samples; their ignorance, superstition, concentrated attention, suppressed animal desires, previous education and isolated condition—all aided in placing in a pathological condition certain physiological functions or qualities. Many other points of interest throughout the work might be noticed, but we shall leave it with the choice morsels found therein.

SINGULAR PROPERTY OF TOMATO LEAVES.

"I planted a peach orchard," writes M. SIROY, of the Society of Horticulture, Valparaiso, "and the trees grew well and strongly. They had just commenced to bud when they were invaded by the curculio (*pulgon,*) which insects were followed, as frequently happens, by ants. Having cut some tomatoes, the idea occurred to me that, by placing some of the leaves around the trunks and branches of the peach trees, I might preserve them from the rays of the sun, which were very powerful.

"My surprise was great upon the following day, to find the trees entirely free from their enemies, not one remaining, except here and there where a curled leaf prevented the tomato from exercising influence. These leaves I carefully unrolled, placing upon them fresh ones from the tomato vine, with the result of banishing the last insect and enabling the trees to grow with luxuriance. Wishing to carry still further my experiment, I steeped in water some fresh leaves of the tomato, and sprinkled with this infusion other plants, roses and oranges. In two days these were also free from the innumerable insects which covered them, I felt sure that, had I used the same means with my melon patch, I should have met with the same result. I therefore deem it a duty I owe to the Society of Horticulture to make known this singular and useful property of the tomato leaves, which I discovered by the merest accident." —*Scientific American.*

Bi-Monthly Abstract.

An Abstract of Current Contributions to Obstetrics, Gynecology and Diseases of Children.

Condensed by EDWARD B. STEVENS, M. D., Lebanon, O.

EXTRA UTERINE GESTATION.—Removal of fœtus by abdominal section; recovery of mother and child. Dr. T. R. Jessop, of the Leeds General Infirmary reports a case to the London Obstetrical Society. The features of the case during the progress of pregnancy are given, but they are not of special import. The patient however was admitted to Dr. Jessop's ward on the evening of Aug. 13, 1875; a living extra uterine fœtus having been already detected by the examining gentlemen; and the history showing that she was not yet eight months advanced. The report proceeds: "I found her emaciated and pain worn, vomiting after everything swallowed, constipated, feverish, with a dry tongue, great thirst, and a rapid feeble pulse. It was abundantly evident that the patient was fast sinking.

"At eleven P. M., a consultation of the whole surgical staff was held, at which the following observations were made. The abdomen throughout was distended. At the umbilicus and below was a large rounded protuberance, which gradually sloped off towards the ensiform cartilage, and terminated inferiorly and somewhat abruptly in a hollow, which was bounded again by a lesser prominence immediately above the pubes. On a closer examination, the umbilical prominence presented the character of a child's breech. The cleft and the two buttocks were distinctly traceable through the thin abdominal walls, and extending upwards in a straight line, towards the sternum, the little prominences of the vertebral spinous processes were plainly perceptible. Above the pubes two feet coud be made out, and above the umbilicus, immediately the ribs, it was not difficult to map out, the outlines of the scapulæ. The rapid beating of the fœtal heart could be most distinctly heard towards the right side above the umbilicus. The breasts were enlarged, and the areolæ were fairly developed.

"On examination per vaginum the uterus felt somewhat enlarged, and on measurement by Simpson's sound, its cavity was found to be two inches and a quarter in length. The uterus remained motionless, while the abdominal contents were swayed from side to side. On several occasions the movements of the child were plainly visible, and indicated considerable vigor. After repeated and careful search, we were unable to satisfy ourselves of the presence of a placental souffle. The diagnosis of extra uterine gestation seemed complete. The woman's condition was becoming extremely critical. Under the circumstances it was decided to remove the child by abdominal section. With the full concurrence of my colleagues, I accordingly proceeded to perform the operation at half past twelve on the morning of the 14th of August. "The patient having been placed under the influence of ether, and the bladder emptied of urine, an incision six inches long was made through the linea alba, with the umbilicus at its centre. The abdominal wall was unusually thin, but more vascular than common, and the peritoneal lining, though natural on its free surface, appeared thick and velvety on section. Immediately upon the completion of the incision, the breech and back of the child, thickly coated with vermix caseosa, came directly into view. At the upper part of the wound the omentum was seen lying like a cap upon the child's shoulders; and inferiorly the funis of natural appearance, passed transversely across the wound, and was traced round the external aspect of the left thigh of the fœtus to its attachment at the umbilicus.

" The child was in a kneeling position, its breech presenting towards the mother's navel, its head folded on its chest, buried beneath the omentum, and transverse colon, the soles of its feet pointing towards the pubes, and its knees resting upon the posterior brim of the pelvis. Its removal was readily effected. The funis was tied and separated in the usual manner, and the child was handed over to custody of two gentlemen previously appointed to look after its well being. It was now seen that the gestation had been of the "abdominal" variety; no trace of cyst or of membrane could be found. The child had lodged in the midst of the bowels, free in the cavity of the abdomen.

" A few bands of unorganized lymph, of a very friable nature—lying upon, but not adherent to, intestines were readily removed by sponging, and about an ounce of clear serum was found in the peritoneal cavity. On tracing the umbilical cord, the placenta, having a larger superficial area than natural, was seen covering the inlet of the pelvis, like the lid of a pot, and extending some distance posteriorly above the brim, where it apparently had an attachment to the large bowel and posterior abdominal wall. Near its center was a round prominence which seemed to correspond with the swollen fundus of the uterus beneath. Great and especial care was taken not to cause the smallest disturbance to its connexions. The placenta was indeed left *untouched.* The umbilical cord was now brought out of the wound, and shortened, so as to have its cut end protruding about two inches beyond the surface of the abdomen, where it was secured at the inferior extremity of the wound by means of a clamp which has been invented by the ingenious Chaplain to our infirmary—Mr. Gough. For the treatment of the pedicle in ovariotomy. The wound was now closed by means of six silver wire sutures passed through the entire thickness of the abdominal wall, and including the peritoneum together with as many intermediate superficial sutures of silk. It was then observed that the prominence above the pubes before alluded to was due to the placenta covering the enlarged uterus, strips of plaster; pads of lint, and a roller completed the dressings.

The two months of tedious subsequent history is interesting but not specially important for our purpose. Both the mother recovered and the child survived. Dr. Jessop concludes his report:

"Two points in the treatment seem to me to be specially worthy of mention; the care which was taken not to interfere in the slightest degree with the placenta, and the provision which was made for securing its escape from the abdomen after its separation from the maturnal structures. Unless the placenta can be removed without the risk of setting up a copious bleeding it had better be left absolutely undisturbed. But what is to become of it? The placenta formed in this case, as in most, by far the largest item in the sum of dangers to be encountered. Experience has shown that a separation from the maternal structures will take place, and that this period of separation must be reckoned as one of the most fatal. Besides the risk of hemorrhage there are others not less grave—peritonitis, septicæmia. All these dangers arediminished by securing an uninterrupted outlet for the detached placenta. Through this opening the disintegrated tissue and offensive fluids found ready egress, and thus were prevented from spreading damage around. Upon looking back, no device has ever suggested itself to my mind better calculated to secure the end which in this case was happily attained, and I think now as I did at the time, that to our management of the placenta may be fairly ascribed a large share of whatever credit we may claim in bringing about a successful issue."

There seems to have been an unusually large number of cases of *extra-uterine pregnancy* reported of late, a fact which we must probably attribute to the increased facilities and skill in diagnosis. Thus: Dr. Thomas (New York) has introduced a new method of operation for the removal of the fœtus under these circumstances and reports one successful case. The patient had an abdominal tumor and pain in the left iliac region. An examination revealed a cyst to the left of the uterus and as large as that organ, and reaching down as far as the middle of the cervix.

The *operation* was done as follows: Sims' speculum being introduced and the vaginal wall put upon the stretch, an incision was made with the galvano cautery knife through the vaginal wall to the cyst. This was then punctured, and the fœtus delivered. A portion of the placenta was detached; but such violent hemorrhage followed that liq. ferri persulphate was injected, and the cavity stuffed with cotton previously soaked in iron and dried. Symptoms of septicæmia showed themselves on the fourth day, when the cotton was removed, and daily injections of carbolic acid and water were instituted. The patient then began to improve, and finally recovered. The doctor thinks it a mistake to attempt the removal of the placenta and in another similar case would leave it above.—[*Vide Dr. Mann's Report Am. Jour. Obstet.*, *Jan* 1877,—*p.* 133.

Clippings

FROM CONTINENTAL MEDICINE.

JAS. T. WHITTAKER, CIN., O.

THF RETINAL PURPLE AND OPTOGRAPHY.—The sensation of the day in continental medical circles is the newly discovered retinal purple, "*Sehpurpur*" and the possibility of obtaining upon the sensitized surface of retinæ exsected from the body permanent pictures. Some years ago this idea was entertained but it was presented without scientific basis and received only ridicule from scientific men. The present studies come to us from the most eminent men in their respective departments, and their conclusions will be universally received. In very recent times communications has been made by different authors concerning the so-called "Purple Retina" and the discovery of "Optography," thereby rendered possible the essential facts relating to which are as follows:

"Purple Retina" means the condition discovered by Prof. Franz Boll, of Rome and presented to the Royal Academy of Sciences at Berlin, Nov. 12, last year, to the effect that the retina of all animals in the dark is purple in color and after sufficient stay in the light of day is colorless.

This blanching of the purple retina under the influence of sunlight takes place so rapidly as to explain why all previous observations have described the retina as always white.

Prof. Kühne, hereupon wrote to the *Centralblatt, f. d. Mediz. Wissenshaft*, March 17, 1877 that the red color of the retinal rods had already been observed in 1857 by Leydig in the rana and pelobates had been confirmed by Max Schultze, 1866, for the rana and described also by the same author in the owl and rat. The works of E. Rose, 1860 concerning santonin, also certain references to this purple retina. This rose color of the retina discovered by Krohn, 1839 in the eye of cephalopods, in 1865, again by Hensen and a year later by Max Schultze who also observed it in the retinal rods of anthropods and insects has thus been known of vertebrates also for 20 years without attracting any general notice.

Schultze missed the red color of the rods only in the bat and among birds (pigeon, chicken), and found it very feeble in the great conical structures of the triton cristatus structures which seemed to make a transition to the cones. I never saw the outer joints of the cones colored and the retina of snakes which contains nothing but very thick cones without pigment bodies is entirely colorless. In pelomyzon, cobitis fossilis and especially in the eel I found the rods distinctly red colored. In the embryos of cattle, so soon as the retina contains distinctly recognizable outer joints, there was always this purple sheen. But everywhere and in all cases the purple fades away in the light.

This red color of the rods is due to a peculiar substance which can be isolated in solution and in solid form. The sole solvent for it with which I am as yet acquainted is bile or a purified cholate in which fresh rods are very quickly dissolved. The clear filtrated solution of retina purple is a magnificent carmine red which changes quickly in the light to chamois and at last becomes colorless. So long as the red is recognizable, it absorbs all the light of the spectrum from the yellowish-green to the violet, transmitting apparently a little violet and certainly all the yellow, orange and red. Accordingly the retina when spread out and freed from blood shows in the objective spectrum from the yellowish-green to the violet gray and black. After the blanching to chamois color the absorption of the yellow green light diminishes while that of violet increases. In the objective spectrum under the direct sunlight between 11 and 1 o'clock, obtained through a chink of 03. mm. wide, with a flint glass prism which showed the Fraunhofer lines in great number and distinctness, the retinæ blanched in fifteen minutes completely at yellow-green up to the beginning of the pure green, much more feebly in the blue green, blue indigo and violet and was just perceptible in the yellow and orange and not at all in the red and ultra violet. After another hour's undisturbed illumination the discoloration was complete in the green and blue-green, almost perfect in the blue and was far advanced in the indigo and violet; at the end of the violet and beginning of the ultra violet it was indistinct, in the yellow and orange scarcely increased and in the red it was not all to be seen. Under very long or often repeated exposure, however, the spectral red seems to change the retinal purple. A soda light of great intensity blanches a frogs retina completely in two hours.

As regards the regeneration of the retinal purple, I have to report that it is complete inside of an hour in the eye of a frog extirpated and brought into the dark. In this case the purple had entirely disappeared after long exposure to daylight during life. That the epithelium alone suffices to render the retinal purple relatively persistent against light is shown by the very slow blanching of frogs' retinæ, which permitted light to traverse all the rods, the whole epithelial covering having been by accident maintained intact.

The *Centralblatt f. d. Med. Wissenschaften*, Feb. 17, contains further "Ophthalmological communications regarding the retinal purple by Dr. Helfreich, private docent at Würzburg. This author undertook to subject some ophthalmological appearances of the bottom of the eye for which we have as yet no satisfactory explanation, to experimental study. He was induced to make these investigations by the circumstance that he was able, with the simple examination of the fundus bulbi of a recently killed frog, to detect the retinal purple, although the retina lay smooth upon the pigment layer. It seemed to him evident therefore that the purple could be recognized with the ophthalmoscope as it must be this purple which gives the extraordinarily vivid and uniform color apparent in the rule upon the surface of the bottom of the normal eye. "It may be certainly maintained that the general impression made by the ophthalmoscopic picture, in no way contradicts the statement just made. It seems however, under a more accurate study of the upright picture, as if the brighter or darker orange, the brown, red etc,, which appear on the illuminated surface lie on a different level, nearer the eye of the examiner, than the dark and black pigment layer."

He made now two experiments on rabbits. Having studied the fundus oculi with the ophthalmoscope beforehand, he killed the animals by section of the cervical cord and then illuminated one eye intensely to quickly destroy the purple, and the other barely enough to see the retina. After eight to fourteen minutes a remarkable difference was seen in the fundus and pupillary field of both eyes. The illuminated fundus showed an entirely colorless or dark gray background while the other seemed red and capable of receiving light. This difference was afterwards repeatedly observed. After enucleation the illuminated retina was found perfectly blanched while the other showed a beautiful rose color. In repeating such investigations daylight would be most suitable in order that the contrast might be produced even earlier.

The next communication on this subject was by Dr. Ernest Fuchs, assistant to the eye clinic of Prof. Arlt at Vienna. "On the Color of the Retina" in the *Wiener Med. Wochenschrift*, Nov. 10th, 1877. This observer saw the red color of the retina, hitherto observed only in animals, in a child born dead at term (dead perhaps twelve hours before birth). It had been extracted with forceps and was immediately enveloped in a cloth brought to the dark room, no light having ever reached its eyes. The retina was extracted under a sodium light and when brought into daylight showed a beautiful rose color. A second dead born child showed the same condition. This author also relates that Prof. Schenck had examined the eyes of the executed matricide Hackler three hours after death and had observed the red color of the retina and its gradual fading away.

And now come the observations of Prof. W. Kühne, of Heidelberg on "Experiments in Optography," *Centralblatt, f. d. Med. Wissenschaften*, Nos. 3, 4, 11, 1877. After he had succeeded in proving the sensibility to light and its regeneration in the exsected retina, he could no longer doubt that external objects as thrown upon the background of the dioptric apparatus of the eye could be maintained and seen. Since normal vision is only possible where there is a continual balance between the blanching of the retinal purple in the rods and the 'purpurogenous' property of the retinal epithelium, lasting pictures could only possibly be maintained when this balance was disturbed. This disturbance could be effected by such long or intense illumination as to prevent the epithelium of the rods from assuming a red color. In mammals, the purpurogenous function of the epithelium disappears in a few minutes after death. I hoped therefore to be able to find the so readily recognizable and tolerably sharply defined images which bright objects make upon the rich red visible retinæ of healthy rabbits—albinos in life, I hoped to be able to find them again in the extirpated eye. But instead of sharply defined images, there were nothing but washed out spots. The reason for this failure with the dead eye was not very easy to explain, but the greatest difficulty seems to depend upon the opacity of the dying retina, which though it does not exactly prevent the reflection (*durchschimmern*) of a good image, yet so influences the chemically essential rays as to make the illuminations from in front very much feebler, as may be seen when the eye is opened. The less the prospect seemed of accomplishing anything in the living animal, the more welcome was the unexpectedly perfect result which was at once experimentally obtained." After several rather complicated experiments Kühne adopted the simplest method of optography. He held the freshly decapitated head of a colored rabbit (that had been kept in the dark) for ten minutes with one eye directed towards a light properly adjusted in a frame support. He then turned the head and exposed the other eye in the same way. Both eyes were then steeped in a 5 per cent solution of alum for twenty-four hours at the end of which time most excellent images could be seen on the back of both retinæ. "We could easily recognize in clear definition the frame about the light and the boards above it as beautiful red stripes and at some distance even the second upper light of the room, an image which was not looked for at all. Microscopic examination of the white spots in the images showed the thick projections of the external joints of the rods to be perfectly intact." As is seen thus optography is so simple that it can be used for demonstration."

Under date of March 5, Kühne writes as follows: (*Centralblatt*, Nov., 11) "In the meantime numerous new experiments with very different objects has been entirely successful. The focal distance of a rabbits eye, left in situ or extirpated is 19-27 ctm. If the eye be put in a wide black box and at the distance from it mentioned different objects cut of black paper and laid upon small glass plates be brought to bear upon it, quite sharp optographic images may be obtained. And as the red retinæ dried on porcelain are persistent, I was able to lay before the Heidelberg naturhistorisch medizinischer Verein a whole series of such pictures. Afterwards it was accidentally discovered (Feb. 21) that retinæ which had dried longer and had been less exposed to light assumed a more orange red hue, and in this state were insensible to seven hours exposure to direct sunlight. The fixation of an optogramme therefore only requires patience. In fresh eyes of oxen I have had excellent optogrammes up to an hour after death and these images were under the same conditions three times as large as those from rabbits. It is not necessary here to use alum at all. The retina has simply to be isolated with a weak solution of salt and the images may be seen at once. Finally I have had optogrammes also in the still living exsected retinæ of frogs. A frog is killed with curare, the nictitating membrane is removed, the eye is turned for two hours towards an Argand gas light, some 40 ctm. distant, the retina is dissected out and spread out smooth upon a microscope cover glass, and then a moderate magnifying power exhibits upon it the image of the flame as a colorless, characteristically sharply bordered spot in the mosaic background of still red rods.

COUNTING THE BLOOD CORPUSCLES IN ANEMIA. — Numerous investigations of the blood in anæmic patients by Dr. G. Hayem has led to the following conclusion. A cubic millimeter of capillary blood drawn from a finger contains 5,500,000 corpuscles; in moderate grades of anæmia there are nearly as many, but they are altered in size and contain less hemoglobin. Under proper chalybeate treatment, the number of red corpuscles remains unchanged or is even somewhat reduced, but their normal size and color is restored. In the higher grades of anæmia the number sinks very considerably even to the half and then under the use of iron new, abnormally small and pale corpuscles appear whereupon the blood undergoes the same changes as in the cases of lighter grade. To accomplish a perfect cure it is necessary to continue the iron for a long time. Then the corpuscles become and remain, not normal in number, it is true, but richer in hemoglobin. In grave and incurable cases of anæmia the blood contains abnormally large red corpuscles whose size increase with the increase of the anæmia to such degree that notwithstdaning the presence of a number of very small elements, the average size of the red corpuscles remains less below the normal than the less high grades of anæmia. Then the number is reduced from day to day, the disease not being arrested with iron. Occasional corpuscles, however, do increase, under its use, both in size and hemoglobin contents, even to above the normal grade. In the worst case observed by Hayem the number of corpuscles in a cubic millimeter was only 414,062 but under the treatment with iron its coloring power equalled 555,000 so that each corpuscle was equivalent to 1.34—*Compt. rend.* 83. *p*, 985.

EFFECT OF CHLOROFORM, MORPHIA ETC., UPON THE FŒTUS. —The question as to what substance may pass from the maternal into the fœtal placenta and thence into the fœtal circulation has been answered hitherto in only the most unsatisfactory way. As to salicylic acid Benicke has shown that it rapidly in this way reaches the fœtal blood. As to chloroform and morphia we have hitherto only had apparent clinical evidence to the effect that they do not reach the fœtus until Zweifel assumed the possibility of it for chloroform. But his investigations were somewhat unsatisfactory because the blood of the fœtus would not yield chloroform to distillation. Dr. H. Fehling now reports in the Archiv. f. Gynäkologie, X. 2. p.313, three cases of vivisection bearing upon this question. In two cases pregnant animals were completely paralysed by injections of a ten per ct. solution of curare and only kept alive with artificial respiration; nevertheless the young ones continued to make lively motions in utero. In the third case an animal very late in pregnancy was chloroformed until spontaneous respiration ceased and life was only sustained by artificial respiration. The young ones still moved and made spontaneous efforts at respiration. In these three cases the curare and chloroform did not pass into the fœtal blood in injurious quantity. The same is also true of morphia, for the fœtal deaths which have occurred after its administration to mothers could always be satisfactorily explained by other causes. Death followed also in cases in which neither morphia nor chloroform had been given. And Kormann has seen living children born some of them still living in cases in which large doses of morphia had been given. Nevertheless, Fehling beleives that, in some cases, intra-uterine morphine intoxication and death has occurred, since in the cases of dead born children in not very severe labors he observed a remarkable congestion of the brain with disseminated apoplexies.

The subject must be investigated further to determine what substances will pass the two layers of epithelium separating the maternal and fetal blood, and how much of any substance must exist in the maternal blood to exercise an injurious effect upon the child.

PATHOLOGY OF PARALYSIS AGITANS. —F. Schultze publishes in Virchow's Archiv. Vol. 68, p, 109 et seq., contributions to the pathological anatomy of the central nervous system, especially of the spinal cord. In the second part of his paper he discusses paralysis agitans in its relation to multiple sclerosis of the spinal cord relating the history of the case of a man who died of pneumonia and who had been affected for five years with tremor of the left hand and left forearm. The tremors in this case increased even when the arm was at rest. Sensibility and motility in the tremulous extremity had always remained intact. The autopsy revealed besides a chronic leptomeningitis, a chronic inflammation of the cord itself with disseminated sclerotic patches chiefly located in the posterior section of the chord. In addition to these lesions the neuroglia elements (fibres, granular intervening substance) were increased so that it could be considered as a diffuse myelitis interstialis. The author also gives the condition of a case of paralysis agitans which had been clinically presented to the class showing a disseminated sclerosis of the spinal cord.

EARLY DIAGNOSIS OF GENERAL PARALYSIS.—Dr. A. Voisin has just published a work on General Paralysis in which he calls attention to the difficulty of making a diagnosis until the pronounced symptoms of the disease appear. The author gives however a number of symptoms manifest very early in the disease, no one of which is pathognomonic, but the association of several of which, or the presence of all pretty clearly define the disease.

Four signs which have the most value, because they are the most constant, are ordinarily the first to appear and are the most persistent, are

1st. Loss or diminution of the sense of smell.

2nd. Faltering of speech and fibrillary trembling of the lips and muscles of the face.

3rd. The phenomena on the part of the pupil.

4th. The existence of fever.

LACERATION OF THE GASTRIC MUCOSA WITH THE SOUND.—Prof. W. D. Leube publishes in the *Deutschen Archiv. f. Klin. Medizin*, (18 Bd. 4, 5 Heft) some observations on laceration of the stomach mucous membrane and its consequences. Pieces of the mucosa may by carelessness or accident in the introduction of the stomach sound or pump tube be torn off and brought out. The author mentions two cases in his own practice. Once a large piece ½ctm. was drawn out through the pump without the least evil consequence, and another time the sound being fenestrated drew out a piece ⅔ctm. long and 3mm. broad. This latter piece microscopic examination showed to be perfectly normal mucosa. Here too no bad results followed. As the patient afterwards died from a cancer of the œsophages situated pretty high up, opportunity was given for a careful examination of the walls of the stomach throughout. There was no where to be discovered a trace of defect or a scar. No loss of blood follows such loss of substance and no ulceration. The reason of it is that the pieces were, though long, quite narrow and the contraction of the stomach muscles closed the defect. Besides there is necessary for the production of a gastric ulcer in addition to disturbances of the circulation an abnormal increase in the acidity of the gastric juice. This condition in man is in accord with the results lately obtained experimentally in animals by Daetroyler and Körte to the effect that lacerations, blood extravasations, section of pieces and cauterisations of the mucous membrane of the stomach, notwithstanding the constant contact with the ingesta and acid gastric juice, all speadily heal.

CHLORAL IN PITYRIASIS CAPITIS.—Dr. L. Martineau reports in the Bulletin de Therapie (XC. p. 49) the favorable results he has met in a great number of pityriases capitis under the application of a five per ct. solution of chloral hydrat in water. The affected parts of the head are washed with one or two tablespoonfuls of this solution warmed, every morning. The head is not to be dried off after its use. The symptoms (scales, itching, etc.,) often disappear in a month if treatment be continued. If the disease be of long standing, it not seldom returns but again disappears under the same treatment. If the pityriasis be attended with erythema of the skin and papular exanthemata the author uses a mixture of 500 water, 25 chloral and 100 liquor Von Swieten (0. 1 hydrag. chlor. corr. spir. vin rectif. and aq. font. aa 50.0)

AN EARLY SIGN OF PHTHISIS. — One of the earliest signs of phthisis to be observed in many cases before any physical evidence betrays the existence of the disease, is accentuation of the pulmonary tone. This accentuation always betokens, aside from better conduction through more solid lining tissue, a hindrance to the circulation in the pulmonic system. This hindrance in the beginning of the disease depends upon the greater relaxation or lessened elasticity of the lung structure.—*Heitler, Vienna, Der Practische Arzt*, February 1877.

THE SPUTA IN PNEUMONIA.—The investigations of Amburger prove further most positively that pure croupous pneumonia does not give alveolar epithelium in the sputum.

Most frequently we may observe pigmented cells in extraordinary quanity and that without any parenchymatous or any other kind of inflammation of the lungs, if there shall have been habitual inhalation of dust. On the other hand the appearance of clear, often still nucleated, fatty or myelin degenerated round epithelial cells in great quantity is always the signal of threatening or already commenced parenchymatous pneumonia. These are the cells described by Ruehle in his treatise on tuberculosis. They are glossy, transparent and gelatinous, containing in quantity strongly granulated cells though the sputum itself is often only scanty. Ruehle states that these cells prove the presence of fresh cheesy centres even though from microscopically small yellowish masses in the gelatinous infiltration. It is possible in suspicious cases to make with this test a differential diagnosis between croupous and the so-called caseous pneumonia in the beginning of the disease.

"With the microscopy of the sputa," says Buhl: "We are able to recognize not only acute miliary tuberculosis but also genuine cheesy pneumonia in the very first days of the disease; we are in position to discover deposits so small as to escape the most skilled auscultation and percussion, and to differentiate between an apex catarrh as the expression of a desquamative pneumonia or a common bronchiolitis and that too at a time when no cavities have as yet been formed.—[*Der Praktische Arzt*, No. 3, March, 77.

ŒDEMA OF THE GLOTTIS IN TONSILLITIS.—Cases by Laveran and Brouardel (Soc. Med. des hop. Gaz. hebd. no. 25, 1876.) Case of Laveran: one of the volunteers attacked Feb. 12th 1875 with angina tonsillaris; right anterior veil œdematous, voice a little nasal. On the second day he was better and, about to leave on furlough, was packing up when he suddenly felt a cold draught, was seized with suffocation, sat himself upon his bed and cried out for help, made a number of violent but ineffective efforts at inspiration and died in less than fifteen minutes. The post mortem revealed great œdema of the right aryepiglottic fold, which closed up the *aditus laryngis*; redness, swelling, inflammation of the tonsils and œdematous infiltration of the mucous membrane of the anterior pillar of the palate.

Case of Brouardel: student, light angina, slight aphonia, laryngoscopy showed œdema of the glottis which increased so that suffocative attacks of three days duration necessitated tracheotomy. The case recovered. In a later attack the student succumbed to acute œdema of the glottis in a few hours.

LOCAL ANESTHESIAS CURED BY METALS.—Prof. Charcot, communicated to the society of biology, Session, Jan., 13, the results of some experiments in the treatment of anæsthetic surfaces by the application of metals, a treatment he had practiced with Dr. Bury, at the Salpetriére. In several hysterical cases the application of 1-2 two franc pieces to anæsthetic surfaces, restored sensibility in from 15 to 20 minutes in a circumference of 5, 6, 8 or 10 ctm., below and above the surface upon which the gold had been laid. The sensibility so restored lasted 24 hours. In other hysterical cases, gold is without effect, while copper and zinc is effective. Simultaneously with the return of the sensibility an elevation of temperature is observed with increase of dynamometric power. Charcot is not willing as yet to venture any explanation. This metallotherapy gives the same results also in anesthesias of cerebral origin.—*Gaz. Des Hóp*, 1877, No. 6.

CHLORATE OF POTASH AND IODIDE OF POTASSIUM INCOMPATIBLE.—This incompatibility has already been noticed in the *Journal de Médecine et de Chirurgie pratiques*, Feb. 1877. Outside the body these two substances do not react on each other except at temperature of boiling water but in the stomach, according to Dr. Melsens they combine to form the iodate of potash which is poisonous.

VARICES OF THE LEG.—Operative treatment of varices of the leg is as old as medicine. New and dangerless is the method of assistance by the antiseptic bandage. Since Dr. Risel of Halle has discovered the cause of these ectasia to depend not upon an impermeability of the saphenous vein but, on the contrary, upon simple hydrostatic pressure, over distension, he has extirpated not only the varicose knots and tortuosities on the leg but also a piece of the trunk of the vein itself. The region of the varicosities is brought out as fully as possible by means of elastic ligatures, then the veins are dissected free, surrounded freely with catgut and cut out between the ligatures. Risel cut out in one session from the same leg six pieces of vein each 4-5ctm. long. Eleven legs of nine patients were treated in this way and under strict antisepsis, not the least accident occurred in the healing process. The cure was complete mostly in eight days so that the patients could walk about. Œdema, thrombosis, etc., occurred in no case. One of the patients, a farm overseer presented himself after a few months with completely cured legs, cured not only of varicose veins but also of an old and obstinate eczema. The further histories of the other patients had not been followed up. *Deutsche Med Wochenschr.* 1877 No. 8.

NEW TREATMENT FOR BURNS.—Nitsche recommends the following application to burns. The whole burnt surface is painted thick and repeatedly with linseed oil containing salicylic acid in the proportion of one to ten. The surface is then covered with thick layers of Brun's batting and fastened with calico. The burned surface should not be previously washed; it should only be freed from the grossest uncleanliness and epidermis shreds. Suppuration is entirely avoided. *Arch. f. Dermat. u. Syph.* 1876, 3. *Heft.*

TESTS FOR CARBONIC OXIDE GAS ETC., IN ROOMS.—A good reagent for carbonic oxide and acid gases is the solution of palladium chloride. Half moistened strips of linen or cotton which are saturated with a concentrated acid free solution of the reagent are colored in contact with the gases mentioned according to Professor Böttcher, intensely black.

A NEW PRESERVING FLUID FOR HISTOLOGICAL PURPOSES.—Dr. Dreschfeld, Prof. Path, Anat. recommends (Centralblatt 1876 40) a very dilute aqueous solution of eosin (1-100 to 1500.) Fine sections are put into this sherry yellow green fluorescent solution when they remain 1-1½ minutes and are the placed a few seconds in water slightly acidulated with acetic acid after which they may be put up in glycerin or balsam. Eosin has the property, by means of its fluorescence, which it possesses in high degree, of clearing up the tissues so that even thick sections show the histological details clean and clear.

A SINGULAR THESIS.—LA FRANCE MEDICADE.—March 14th, 1877 notices the recent death of Dr. Pellassy des Fayoles at Paris aged 75 years. He selected as the subject of his thesis for the doctorate the singular question. "Is it possible to introduce a placenta and cord into the vagina at other time than parturition and thus simulate an *accouchement reel?*"

THE INTERVAL BETWEEN THE BIRTHS OF TWINS.—*The Gazette Medicale de* St. Petersburg reports that in a village of the government, of Novgorod, a woman aged 20, primipara was delivered January 30th of a female child well developed and at full term and in three days afterwards of a male child equally well developed. During the interval she was occupied with the cares of her house.—*La France Medicale*, April 11, 1877.

PHOSPHORESCENT SWEAT.—Prof. Fargioni presented a paper to the medico-physical society of Florence on the phosphorescence of marine animals, and after it Prof. Panceri mentioned the case of a Neapolitan physician who had eaten of fish and afterwards experienced malaise and nausea and presented the phenomenon of a luminous sweat. The physician related his case to Prof. Pancieri while he was making some observations upon a phosphorescent fish, the *pesce baudiera*, found in the waters of Naples. Prof. Pancieri did not hesitate to attribute the phosphorescence of his Neapolitan confrére to the elimination of the fatty matter of the fish.

Hereupon, another academician, Dr. Borgiotti mentioned having seen phosphorescent sweat in a patient affected with miliaria and this condition had alarmed the family of the patient in no slight degree and considerably astonished his physician who although he did not share their superstitions was at a loss to explain the phenomenon. But one of his colleagues, to whom he related the case, informed him that this condition had already been recorded in the history of miliaria *Lo Sperimentale.*—

This question of the evolution of light from the body is exceedingly interesting from the fact that it has so often received superstitious interpretation. The aureola about the head of the "saints" has really been authentically observed in advanced cases of phthisis. It is of course nothing else than the ignis fatuus, corpse light in cemeteries etc. i. e. a phenonenon of phosphorescence.

In 1842 Sir Herbert Marsh, Dublin, wrote a paper on the Evolution of Light from the Living Human Subjects containing many interesting cases. A resume of this paper may be found in Carpenter's Physiology p. 549. One of the cases was that narrated by Dr. Stokes: An old lady admitted to the hospital on account of an enormous mammary cancer of which every part of the base and edges was strongly phosphorescent, the light being sufficient to enable the figures on a watch dial to be distinguished within a few inches. The author read also the cases of phthisis with light playing around the face. In Dr. Donovan's patient, not only was the luminous appearance perceptible over the head of the bed, but luminous vapors passed in streams through the apartment. That the luminosity in these cases was due to phosphorescent breath is pretty clearly proven by the fact that the injection of phosphoretted oil into the blood vessels gives rise to a similar appearance. In repeating this experiment Sir H. Marsh states, that when half an ounce of olive oil holding two grains of phosphorus in solution was injected into the crural vein of a dog, a dense white vapor began to issue from the nostrils even before the syringe was completely emptied, which became faintly luminous on the removal of the lights: and the injection being repeated with the same quantity, the expiration immediately became beautifully luminous, resembling jets of pale-colored flame pouring from the nostrils of the animal. Büchner reported a case in which the urine and semen of a patient who was under treatment for impotence and spermatorrhea and who was employing phosphorus as a remedy both externally and internally were observed to be luminous. A case has been reported by Kaster in which the body linen was rendered luminous by the perspiration after any violent exercise.

Proceedings of Societies.

PROCEEDINGS OF THE CINCINNATI MEDICAL SOCIETY.

Reported by P. ZENNER, M. D., Secretary.

Society met Dec. 12th, 1875, Dr. Murphy presiding.

The question as to the prevalence of diphtheria being broached, Dr. Taylor said that the number of cases of that disease seen by the physician depends upon his methods of diagnosis, that is, whether or not he makes a correct diagnosis. He then detailed two cases which he thought would have been proncunced by some diphtheria, and under certain circumstances might certainly be considered of that nature. The first case was a child fifteen months of age, hygienic condition fair; had apparently been quite healthy until the day before yesterday. On that day it vomited several times, and had several watery passages. Yesterday it seemed dull, and was thirsty. When the Dr. saw it, it was asleep, but was easily aroused; pulse 160, tem. 100. Some tenderness and swelling of throat externally. No exudation visible on examing throat, but after the examination spit up some mucous tinged with blood. There has been no eruption on the body.

The Dr. is not disposed to consider this scarlatina on account of absence of an eruption; slight throat symptoms, and low temperature; nor can he consider it diphtheria.

Saw another case on same day, child nine months old, in good surroundings. Had been restless and thirsty for a day or two. There was a slightly elevated temperature, rapid pulse, tonsils were swollen, with induration of glands externally, no erruption. Child is decidedly better to-day.

If there were a marked prevalence of either scarlatina or diphtheria he might consider these as cases of one of those diseases, but in absence of such epidemic influence can not do so.

Dr. Wm. B. Davis said that a week ago he was called to see a lady, who had a high fever, and in whom both tonsils were much enlarged and ulcerated, and glands externally swollen. She had been called from the city to nurse her sister, who she said, had been affected with malignant diphtheria, and remained with her till convalescent. The Dr. considered this a case of diphtheria, and called attention to the long period of incubation over ten days. With the use of carbolic acid and chlorate of potash, the lady speedily recovered.

Dr. Kearney (health officer) said that cases of mortality from this disease had been reported during the last eighteen weeks, sixty-three fatal cases having been reported.

Dr. Taylor said he would like to hear from the members on the subject of diagnosis of diphtheria. The history given by Dr. Davis, did not appear to be that of this disease. He has seen but one undoubted case of this disease this year. A boy, four years of age arose in the morning apparently well, took sick suddenly and when the Dr. saw him at 1 o'clock P. M., he was very pale, in a state of profound prostration. There was a white exudation in mucous membrane of fauces. This prostrated condition persisted four or five days, and it was several weeks before entire recovery. The Dr. would not consider a case affected with diphtheria unless there was profound prostration at the outset, revealing a blood poisoning disease, and the characteristic exudation were present in the throat. He would especially protest against pronouncing every case of sore throat diphtheria.

Dr. Davis said in many instances the exudation may not be visible for a long time, being perhaps located in some part beyond inspection, as in the alimentary track. Says he has seen cases where nothing was observable for a long time except a constant sense of uneasiness and finally paralysis and other sequellæ of diphtheria would appear. He thinks that whenever this disease is suspected patients should be put on a strong tonic treatment. Thinks such patients will bear very free stimulation. Says that in former years whenever he saw a case of diphtheria, he would have some indication of the disease. In such cases he would always use stimulants freely. But since his trip to Europe has never been troubled in this way. The Dr. then mentioned a case of varicella which became of serious consequence on account of the sequella, violent inflammation and ulceration of the tonsils. He said it was the only case of chicken pox he ever saw in which there were any important complications.

Dr. Comegys said he once saw grave complications in such a case. Inflammation of the shoulder and elbow joints supervened terminating in ankylosis. In this case he supposes that septic matters were absorbed from the superficial ulcerations directly by the blood vessels, and thus the joints became affected. He does not think that the lymphatics were the channels of conveyance of septic influence; though he mentioned a case in which such was the case, in which severe adenitis in prolipteal the space was caused by a small ulceration on the heel.

On the subject of diphtheria the Dr. said absence of fever appeared to him to be a marked feature in many cases. He mentioned one case in which a child was attacked with the disease very suddenly and died within a few hours. Another milder case followed by paralysis of the flexors of the left leg. In this case there was no difference in the temperature of the legs, nor did the paralyzed one waste away. The paralysis appeared to be peripheral as there was not the least response to the faradic current. Sensation was unimpaired. The Dr. thought the motor filaments of spinal nerves were affected after leaving the cord; what the nature of the disease is I cannot say, possibly inflammation of sheaths of the nerves.

The child has so far recovered that it can walk though there is still drooping of the foot. The treatment instituted was plunging the child's leg in hot bath (temp. 115°) once or twice daily, also shampooing the leg frequently, and the administration of small doses of bichloride of mercury. In this connection the Dr. mentioned having been called in consultation to an apparently hopeless case of diphtheritic croup, hypodermic injections of bichloride of mercury were suggested, and the child made a good recovery.

Dr. McKenzie said he did not think diphtheria occurred very frequently here, as in a practice of eleven years, two years of which time he had been interne in the Cincinnati Hospital, and several years on the staff of that hospital, he had only seen four undoubted cases. He knew that the disease might exist without its characteristic exudation in the throat, for such a case had come under his charge, in which the true disease was only revealed by its sequellæ paralysis. But he did not think the exudation would occur without producing local manifestations. Dr. Murphy said that many diseases of the throat are falsely termed diphtheria. The Dr. then described cases of follicular pharyngitis, ulcerative sore throat, general pharyngitis, etc., which he said were often mistaken for diphtheria.

In true diphtheria the exudation is a pearly white color, it is usually in patches, in size from $\frac{1}{2}$ to 1 finger-nail, and may exist in tonsils, palate, cheeks, nose or elsewhere. If any ulceration exist it is usually secondary, following the removal of the exudation, or caused by inflammation in the deeper portion of the mucous membrane or sub-mucous tissue. He has not seen many cases of this disease, the last one in last January. This was in a boy four years of age, who had a moderate amount of fever, and in whom a pearly white exudation covered the insides of the cheeks and the throat. He ordered quinia grs. ij. every two hours, milk punch *ad lib.* and inhalations of vapor of lime water. In three weeks the patient was well. It was two weeks before the exudation was thrown off.

The Dr. thinks there are two forms of this disease. One begins locally, and the system is secondarily affected, in the other the system becomes infected, there is prostration as an evidence of blood poisoning, and afterwards there is a local manifestation in the throat. Occasionally a case is so overcome by the poison that the patient dies before there is any local manifestation. We sometimes have like occurrences in other blood-poisoning diseases. Has seen cases of cholera, collapsed, suffering with violent cramps, and dying six hours after being seized with the disease, in whom no diarrhœa occurred.

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Editorial.

We are in receipt of the following circular which explains itself:

WOMEN'S WORK FOR WOMEN.

Believing that among many of the upper and middle classes of society there are women who have fallen into the habit of drinking, who would gladly be delivered from this temptation, yet have not the courage in themselves to reform, the Managers of the Women's Christian Temperance Union of Philadelphia feel that a field of work has opened before them, which, under divine help, may be blessed to the restoration of mothers and wives reclaimed from this sad appetite.

We have, therefore, established in Philadelphia a Home for the reception of those who are willing to place themselves under restraint, where religious influences will surround them, and where their physical condition will be cared for by a resident female physician, Dr. A. V. Scott, who makes an especial study of these cases. The Home is to be exclusively for a class of women for whom the other reformatory homes of our city would be entirely unsuitable.

Payment for board and medical attendance is modified according to the circumstances of the patient.

We believe that substitution is not reformation, and the appetite must be quenched, not pandered to in other forms.

We also believe that it is only by the grace of God in the heart that a true reformation can be effected, and it is our aim to bring every one who comes under our roof to a conviction of this truth, and lead them to Him who is able to deliver.

We wish our patients to remain in the Home for three months, as making the effectual work of reform more sure. It is our desire to make our Home as comfortable and attractive as possible, having lectures and entertainments certain evenings in the week. The managers hold a weekly prayer-meeting on one afternoon, to which all in the house are invited, and there are also other religious services.

Application for admission may be made at the Home, No. 220 North Thirteenth Street, Philadelphia.

President: MISS SARAH CADBURY, 1530 Cherry Street.
Secretary: MRS. H. M. TROTH, 2018 Race Street.

References:

Dr. R. P. Harris.
Rev. Henry C. Westwood, D. D.
Rev. A. J. Rowland.
Samuel P. Godwin.
John Graff.

A MEETING of the Provisional Association of American Medical Colleges will be held at the Palmer House, Chicago, on Saturday, June 2d, 1877, at 10 o'clock, A. M. All colleges represented at the meeting of the Association held June, 1876, are invited to send delegates to the ensuing meeting, and all chartered medical colleges in the United States recognized as "regular" by the colleges already represented in this Association, are also invited to send delegates from their Faculties to the said meeting.

J. B. BIDDLE, M. D., *President.*

A GENERAL Index to the New York *Medical Journal*, from April, 1865, to June, 1876, has been prepared by Dr. James B. Hunter, and published by D. Appleton & Co. The arrangement is appreciated by those having files of that publication.

IN our issue of July, 1876, we chronicled the verdict of a Butler County jury awarding three hundred dollars damages for malpractice to a former patient of Dr. J. Owsley, of Jacksonburgh. We did not hesitate to say that the verdict was an outrage upon a skillful surgeon who had faithfully labored to do his duty to a fretful, ignorant and meddlesome patient; nor that the patient's deformity was acquired after he had passed out of Dr. O.'s hands.

We are now prepared to say that Dr. Owsley is not only a competent surgeon, but a man of commendable pluck. He carried his case before a higher court which, sitting in Hamilton during the last month, has set aside the verdict of damages on the ground that it is clearly contrary to the evidence. Dr. Owsley's former patient may now let his claim die, or may proceed with another trial.

We are pleased to see our opinion, expressed in these columus last summer, confirmed by the authority of a District Court. We congratulate Dr. O. that he no longer lies under the shame of a verdict of malpractice even from such a jury. More than all, we rejoice that a danger which menaced the profession in this neighborhood has been nipped in the bud, and that malpractice suits will no longer be the fashion in Butler County.

HARVARD UNIVERSITY.—Dr. John P. Reynolds has been appointed to the chair of obstetrics at the Harvard Medical School, left vacant by the death of Dr. Buckingham. Dr. W. L. Richardson has been appointed instructor in obstetrics, and the office of instructor in clinical obstetrics has been abolished.

JEFFERSON MEDICAL COLLEGE.—Professor Robert E. Rogers, Dean of the Medical Department of the University of Penn., has been elected Professor of Chemistry in Jefferson Medical College.

Review.

The Mortality of Surgical Operations in the Upper Lake States, compared with that of other regions. By Edmund Andrews, A. M., M. D., Professor of Principles and Practice of Surgery in Chicago Medical College, assisted by Thomas B. Lacy, M. D., Assistant Surgeon in the National Soldiers' Home.

This is a monograph of 123 p p. reprinted from the *Medical Journal and Examiner* of Chicago, where it originally appeared in a series of papers. The purpose of the author has been to make an exhibit of each of the important surgical operations as performed in the Lake States, and accompany in tabulated form the results of the same operation as performed elsewhere, not only in the United

States, but throughout the world. With some of the capital operr ations, as the "major amputations, and also herniotomy" it appears that the results are in favor of the Lake regions; but with lithotomy there is greater danger here than elsewhere.

To prepare a series of tabulated information, such as we find in Dr. Andrew's modest little pamphlet, requires a degree of laborious research and patient discrimination, that few can appreciate unless they have attempted like labor. Dr. Andrews has evidently done his work well and honestly. Such compilation of statistics will be of great value to the surgeon, not only in determining the safety of individual operations, but the comparative safety of particular localities.

We cannot take the space to present the results of the several operations, but must for these refer the reader to the monograph.

It is to be regretted that circumstances compelled so unsatisfactory typographical execution of such valuable matter. E. B. S.

Hydrocele. By D. Hayes Agnew, M. D., Professor in the University of Pennsylvania.

This is whole No. 26 of the series of American Clinical Lectures, as edited by Dr. Seguin of New York. This series has thus far presented a large amount of excellent clinical material, of which this lecture by Prof. Agnew is no exception. The teacher in this case has taken the opportunity of his patient to present the differential diagnosis between hydrocele and hernia, hæmatocele, sarcocele and encephaloid disease of the testis. In considering the question of *treatment* the author after a brief review of various methods gives the decided preference to the plan for radical cure by injection of "undiluted officinal tincture of iodine" which "should be thrown in and allowed to remain." He says, "I shall proceed to illustrate, in the case of this patient before you, the operation which I have done a great many times, and always with a successful result, when its details have been observed." E. B. S.

Tonic Treatment of Syphilis. By E. L. Keyes, A. M., M. D. D. Appleton, and Co., New York.

This is a small monograph of some 80 pages. Dr. Keys is an ardent believer in mercury, administered in minute doses, as a tonic in syphilis. From a number of carefully made experiments, the author has concluded that small doses of mercury (or of the iodides) increases the quantity of red blood corpuscles in the syphilitic subject. A great number of writers on the physiological action of mercury might be quoted, whose views are in direct opposition to those enunciated by Dr. Keys, as for instance, Drs. Polotebrau, Pidoux and Bretoreau. The author states that he prefers the French granules of the proto-iodide. The *Reviewer* can endorse Dr. Keyes preference for this form of mercury—for having prescribed all the other preparations of mercury with comparatively indifferent results, the proto-iodide has been found to be the remedy *par excellence* although used in larger doses than recommended by the author. This little work of Keys contains numerous formulæ, and many useful and practical suggestions regarding the treatment of the disease in its various stages. It is well written and worthy of a place in the library of every physician. T. C. M.

On some Conditions, Physical and Rational, in Effusions in the Pleur.

This is a paper by Dr. Beverly Robinson, one of the physicians to Charity Hospital New York; originally read to the New York Academy of Medicine and reprinted from the Medical Record. The object of the writer is to show the importance of prompt thoracentesis "*in all cases of pleuritis in which fluid is present*" drawing off promptly the morbid effusion by the aspirator; Dr. Robinson also takes occasion to explain the causes which account for some recent cases of sudden death after this operation. The paper is a clear resumé of the best views on this operation and its importance as held at the present time. E. B. S.

American Clinical Lectures, Vol. 11. Edited by E. C. Sequin, M. D. Putnams Son's, New York.

This is the series of Lectures, notices of which have from time to time appeared in the "LANCET AND OBSERVER." The volume before us contains the various papers published during the past year, by Drs. Bartholow, Jewell. Sequin, Delafield, Noyes, Lefferta, Sands, Weis, Pooley, Hammond, Taylor and Miles, all well-known writers of acknowledged ability. Some of these papers have been criticised in our columns, for this we have no apology to offer. Professors of "Clinical Medicine" in the United States form so numerous a class in every community nowadays, that the present series of "American Clinical Lectures" may be prolonged indefinitely. With the outgrowth of a large crop of new medical colleges the supply of material for innumerable erudite papers will be forthcoming, and would it not be a matter of much surprize if this large supply would greatly exceed the popular demand. T. C. M.

Transactions of the Ohio State Medical Society. This is a volume of two hundred pages, containing various reports and volunteer papers read before the State Society at its last meeting (Put-in-Bay, June 20th, 1876). Some of these papers are excellent, some only passable.

The opening address of the "Retiring President," Dr. E. Williams, of Cincinnati, is exceedingly readable, and entirely free from the faults that usually mar the value of such papers. It is clear, concise and to the point. An essay by Dr. C. S. Muscroft, on "Foreign Bodies in the Rectum," is a very valuable contribution to the "Surgical Section" of the "Transactions." A resumé of this paper has been translated into the *Journal de Medicine et de Chirurgie, Paris* 1876." Dr. Muscroft, should feel highly flattered at this testimonial of esteem from abroad. Drs. Pooley, of Columbus, and Drs. Reamy, Miles and Davis, of Cincinnati, contribute interesting reports. With the exceptions named, the articles contained in last year's transactions are hardly up to the usual standard. It is to be feared that "Put-in-Bay," is not a place conducive to the higher intellectual development of the "Ohio State Society," although the bracing breezes of Lake Erie, and the close proximity of Kelley Island vineyards, may contribute somewhat more than ordinarily to a feeling of good fellowship. This is fully evidenced if we turn to the "Minutes of the Society" (p. 25), where we learn in regard to certain resolutions that, "The introduction of these resolutions was the signal for war, and gave rise to a warm discussion, becoming at times almost personal in character; still Dr. ———, bore himself well throughout the entire engagement. Even after the battle became general, he seemed calm and serene amid the storm he had raised, and above the din and war of battles he was heard to exclaim, "*Reform* is the word, this is the Centennial year of *reform;* the two great political parties have bespangled their philâcteries with the world and ere this stammering tongue is gathered to the Fathers, I hope to see it emblazoned on the banner of medicine, and every doctor stand out fair as the moon, as bright as the sun, and as terrible as"—etc., etc. We judge from the reading of these very interesting minutes, that the proceedings of the Ohio State Medical Society," were demoralized all through by the feeling of good fellowship before mentioned. T. C. M.

Transactions of the Illinois State Medical Society, 1876. A volume of about 250 pages, containing some very well written reports and but few papers of any great value. The reports of Dr. Mussey on "Practical Medicine;" Dr. McClelland, on "Medical Jurisprudence;" Dr. Green, on "Surgery;" Rev. Dr. Jackson, on "Menstruation;" Dr. Slatter, on "Placenta Previa;" and of Dr. Sarah Hackett Stevenson on "Physiology," are all extremely readable and interesting. T. C. M.

Transactions of the New York Pathological Society, Vol., 1. Based on the Proceedings for the year 1875, and largely supplimented from the records from 1844 to 1872. John C. Peters, M. D., Editor. George F. Shrady, M. D., E. C. Sequin, M. D., Thomas E. Saterthwaite, M. D., Committee on publication. New York: William Wood & Co.

This is a most interesting volume as it narrates the history from its origin to the present time of one of the most active and useful societies in the Metropolis. The greater portion of the book is taken up with reports of cases and specimens; which really makes it a valuable work on Clinical Medicine and Surgery, as only the instructive and interestihg cases are published.

Attention is called to the advertisement of Merrell, Thorp and Lloyd in this number of the LANCET AND OBSERVER. This house was awarded the highest premiums for fine pharmaceutical preparations and chemicals at our Cincinnati Expositions as follows:

Diplomas for Pharmaceutical Preparations 1872; silver medal Chemicals, 1873. Pharmaceutical Preparations, silver medal, 1873. Pharmaceutical Preparations, silver medal, 1874. And the only gold medal which was ever awarded by this Exposition for the best display of Chemicals, Pharmaceutical Preparations and Drugs, 1874. Mr. J. U. Lloyd (their Chemist) carried off the medal for fine and rare chemicals, 1875, (the only one we believe ever given). They make Benzoate of Lithia, Monobromated Champhor, Salicylic Acid, and all the new Chemicals as soon as introduced to the medical profession. The Fluid Extracts made by this firm are unsurpassed, also Podophyllin, Macrotin, Phosphate of Hydrastin, Sulphate of Hydrastin, etc., and Spirit of Nitrous Ether free from copper, lead. or any adulteration.

A Course of Practical Histology: Being an Introduction to the use of the Microscope. By Ewart Albert Schäfer, Assistant Professor of Physiology in University College, London. Illustrated. Philadelphia: Henry C. Lea., 1877. For sale by Robert Clarke & Co. Price $2.00.

This work is especially designed for the use of students, and to afford those engaged in the practical study of Histology plain and practical directions in the examination of tissues. The numerous illustrations which accompany the text makes this a most valuable handbook.

A Practical Treatise on the Diseases of Children. By J. Forsyth Meigs, M. D., and William Pepper, A. M., M. D. Sixth Edition. Revised and enlarged. Philadelphia: Lindsay and Blakiston, 1877. For sale by Robert Clarke & Co. Price $6 00

A standard medical text book that has rapidly passed through five editions, with a sixth demanded and issued has certainly received an endorsement from the profession at large that must be cheering to the authors and publisher.

The work has been carefully revised and a chapter on Night Terrors, and one on Cerebro-Spinal Meningitis added to the contents. Otherwise the subject matter has not been materially changed from that of the fifth edition which was issued but two years ago. There is no better or more reliable work on diseases of children published in the English language. And is especially valuable to American students and practitioners.

THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

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Original Communications.

Art. 1.—Hydrotherapeutics.

A Paper read before the Academy of Medicine, Cincinnati, O., Nov. 12th, 1876.

BY H. ILLOWY, M. D.

The use of water, both warm and cold, as a therapeutic agent of value dates from the earliest period of medicine. It is however also true, that, while the notions of physicians and people have allowed the free use of warm water, hot water and tepid water, cold water has as a rule until within the last century not been so regarded or used with that frequency that its great power for good, when properly applied, seems to demand. Although Hippocrates, Rhazes and Avicenna already mention cold water as a remedial agent, still from their day till up to the fifteenth century its use as such was almost unknown. At that period it came in vogue for a while, until taken hold of by charlatans, when, with the contempt that regular physicians have at all times held in the ways and means of those individuals, medical men discarded its use and it again fell into oblivion. It was again revived at a later period and used with most excellent results in some epidemics of typhus and scarlet fever. It was not however until Dr. Currie, of Liverpool, (Medical reports on the effects of water, cold and warm, in fever and other diseases; Liverpool, 1788), that there came some scientific system into the application of cold water.

To Priesnitz, however, is due the credit of having demonstrated the remarkable powers for good when properly used in his water-cure establishment at Greifswalde. Although from the lack of proper medical training, and the insane efforts of his disciples to hold up water as a panacea for all the ills the human flesh is heir to, he fell into the habits of the charlatan, used his agent indiscriminately, and drove physicians to the other extreme of discarding it altogether; it is still not the less true that the remarkable cures also obtained, did much towards directing at a later period the attention of physicians to his method of cure, to a careful and thorough study of it, and a recognition of its value when properly used and in the proper cases. From this has resulted its general introduction on the continent of Europe.

It is not my intention in this brief paper to detail to you the whole *modus operandi* of hydrotherapy; *quod vidimus testamur*, having had occasion to use one of its methods in my practice, I desire only to bring the results before your notice, not as something new, but nevertheless perhaps worthy of attention. I am the more induced to this as it is a method very little employed in this country (so far as my reading of the periodicals goes) so that even so very eminent a physician as Prof. Flint, of New York, although recommending its use, states that he himself has had no experience with it.—[*Flint on Phthisis*, 1875.

Hydropathy is essentially an enepidermic method, it addresses itself to the skin, at times however to this only as an intermediary organ. The skin may be viewed from three different points.

First, as an organ of exhalation and secretion, assisting in the removal of injurious substances from the body and contributing by its function to the maintenance of the organs of life in a normal condition.

Second, it may be regarded as an expansion of the capillary system, capable of receiving if necessary sanguineous accumulations to the great benefit of the internal viscera.

Third, as a tactile organ it is the terminal point of the nerve filaments upon which impressions are made and conveyed to the proper centres.

It is chiefly to the nervous filaments and through them to the general nervous system that hydropathy addresses itself; it is also to the skin, however, as an organ of transpiration that it is addressed to.

Water thus applied to the skin may act on the heat proper, on the circulatory system, or on the nervous system according to the particular method of application. Nevertheless, it may be here remarked that no matter what the effect sought for may be, it cannot be obtained without more or less influencing the nervous system.

Water by its temperature exercises an incontestable influence on the heat proper of the human body; it acts principally by impression on the peripheral extremities of the nerves, and thus provokes reflex actions more or less palpable, manifesting itself either in the organs stimulated, or in organs further removed. It therefore results that the nervous system is the intermediary between the action of the water externally, and the effects general or special resulting therefrom.

When cold water is applied to the body in whatever manner, it provokes a series of phenomena through its impression upon the sensitive nerves, and a subtraction of the heat. That the phenomena mentioned are due to nervous impression has been amply demonstrated by the experiments of Brown-Sequard, Edwards and Tholozan.

The first effect that manifests itself is a contraction of the capillaries of the surface forcing the blood into the inner portions of the body accompanied by a feeling of suffocation and embarrassed respiration. The inspiration is shortened and expiration prolonged. There is a sense of constriction in the epigastrium. The skin pales rapidly from the contraction of the capillaries. This contraction extends rapidly to the muscles and produces successively the goose-skin, the shivering, the trembling of the limbs, the chattering of the teeth and a constriction of the muscles of the jaw. The nipples become erect and the testicles are drawn upwards; this action extends to the muscles of vegetative life and produces an involuntary flow of urine. The pulse becomes thin and hard but not augmented in frequency. To this sort of excitation there soon succeeds a period of calm. The skin regains its color, the beats of the heart are increased in frequency, especially if the patient make free motion—this period of calm is what is termed reaction.

If however the effect of the cold be prolonged, there is again a sedation, manifesting itself by shivering. This, the "second shivering," is indicative that the cold is gaining the upper hand, reducing the temperature of the body below what it can bear, and if further persisted in, dangerous and even fatal effects may result.

Reaction from cold is the result of nature gathering her forces as it were to throw off the effects of the cold.

If the cold has only been in contact with the body for a short period, reaction sets in very quickly. The skin becomes red from the stimulated flow of blood to its capillaries, there is an increase in the pulse, a feeling of heat pervades which is soon succeeded by a profuse perspiration. There is a feeling of freshness, vigor and general *bien etre*, that every one who has enjoyed a cold bath will well recognize.

If the effects of cold have been prolonged (that is the temperature of the cold kept up at the same degree; not allowed to be warmed by the caloric of the body as in the bath tub) the contrary of the above will result—there is a feeling of languor, hebetude and a tendency to sleep—in short the effect is a decided sedative one.

The effects of cold may therefore be classified as follows:

When generally applied,

First, a tonic or stimulating effect.
Second, a sedative effect.

When locally applied,

First, an astringent.
Second, excito-motor.
Third, revulsive effect.

Just according to the manner of application.

Although cold water is the agent chiefly employed in hydrotherapy, still it is not confined to it, but employs as it seems, requisite cold air, hot air, dry heat, hot water, etc.

By the term heat, as a medical application, we understand that the temperature of the medium employed is higher than that of the body. No precise degree can be fixed for it, depending altogether upon the temperature of the human body to which it is applied. Although generally a temperature of the medium of from 98 to 100° may be remedial, still when the heat of the body from long exposure to cold, or in certain stages of sickness the temperature has fallen below the normal standard, a much lower temperature of the medium may convey the impression of heat. This impression is in direct proportion to the heat of the medium, and to the extent of surface impressed.

Heat in the form of dry heat, or hot air is a diffusible stimulant. There is an increase in the beats of the heart correspondingly in the frequency of the pulse and the other phenomena excited by this class of agents. The temperature however is not raised so much as would be expected. Dr. Beni-Barsch found that in the hot air chamber, at a temperature of 105°, the thermometer placed under the tongue did not show a greater elevation than one degree.

When however the heat is combined with water the effect varies. Water naturally has a sedative effect. If however the degree of heat be very high such as is employed for circumscribed applications as in pediluvia, there is a local stimulating effect, the capillaries become slightly contracted, only to become more dilated; very soon there is an increased flow of blood to the part, and if carried far enough stagnation may result.

The warm bath however, such as is generally used is strictly sedative in its effects; there is at first a manifestation of the phenomena of stimulation above described, very soon however profuse perspiration sets in and with it sedation; there is a lessening in the pulse, a lowering of the temperature, a general feeling of agreeable lassitude.

The effects of water combined with heat may therefore be classified as follows:

Warm water in general application—A sedative effect.

Hot water locally applied—A revulsive effect, or a stimulating effect.

I will again remark here that in these preliminary remarks I have confined myself to describing the effects of agents so far only as I have used them in my practice.

As the terms hot and cold are comparative, I give herewith the classification of Dr. B. Barsch:

From	46°	to	53°	Fahr.	Very cold.
"	53	to	61	"	Cold.
"	61	to	68	"	Fresh.
"	68	to	78	"	Chill taken off.
"	78	to	86	"	Tempered or lukewarm.
"	86	to	104	"	Warm.
	Above		104	"	Hot.

The methods of applying the cold water are numerous, varying according to the effect desired to be obtained; general baths, partial baths, douches, shower bath, wet pack, etc. Of all these various methods I have thus far had occasion to employ but one, namely the wet sheet, as will be seen in the histories of the cases related; in some of the cases as the only method applicable, and in another I had chosen it for the various advantages that it possesses over the general cold bath, where that would be indicated as in Case III.

In plunging a child into a cold bath, there is always a shock to the nervous system; then while in the bath it must be kept for sometime (at times as long as half an hour) in an uncomfortable position; there is a constant dread on the part of the child of slipping from its nurses arms; all of which is certainly not beneficial. The temperature is reduced, the child is returned to its bed. After a few hours the temperature has again risen, and again the child must be plunged into the cold bath, with all its disagreeableness only heightened in the estimation of the child by its knowledge of the first. This time however, perhaps, (as sometimes will happen) the temperature does not descend so quickly or so much as may be desired; we add ice to the bath and then perhaps cool it off too rapidly, and thus induce a dangerous congestion or keeping it in the bath too long may perhaps cause fatal prostration.

All of these things are avoided by the wet-sheet. A large muslin sheet is wrung out of cold water, the naked child wrapped in it, placed in bed and covered with a blanket. The coolness conveys a sense of comfort *bién aise* to the child, which is augmented by the comfortable horizontal position that it can maintain. The nurse watches; the moment the sheet begins to warm it is removed and replaced by another. If the first sheet begins to warm in five minutes, it will be found that the third or fourth sheet will remain cool for half an hour, and so on, until the superabundant caloric is removed.

The temperature is gradually reduced, and when reduced it is kept so by the constantly renewed sheets which have the same effect as a fresh current of water. Not as with the cold bath, where it is reduced, and allowed to rise to be tumbled down again.

The objection that the sheet warms and thus may induce a rise in temperature is puerile. The few seconds that it is on warm (and the process must be carefully watched by the nurse or attendant), have no perceptible effect—even in a cold bath the water after a few minutes does not have the effect that it had at first, for the water becomes warmed by the heat of the body plunged into it and abstracted from it by the water. Besides as said above, the wet sheet used as described here, is one long continuous cold bath where the warmed water is constantly replaced by a fresh stream and its effectiveness more than double—without any of the inconveniences attaching to a bath.

For these reasons I am in favor of using the wet-sheet as described, for children especially, in preference to the general cold bath where such is indicated. I must add that these remarks only refer to cases like No. 3 described in this paper, where the object is to reduce temperature—otherwise in its proper place I have great confidence in the beneficial action of cold baths.

TOPICAL APPLICATION OF COLD WATER BY THE WET SHEET.

CASE I. *Puerperal Fever.*—Mrs. W., æt. 29, in her third confinement. Some seven• weeks previous to my visit, the lady had been confined and after a tedious labor delivered of a healthy living child. Soon after, puerperal fever set in and there was great suffering on the part of the patient. She was treated by her medical attendant with large doses of opium, quinine etc., externally, warm poultices over the abdomen. In spite of all treatment however (as I was informed) there was no evident improvement; there was great tenderness over the abdominal region, it continued to enlarge and her general condition was very much deteriorated. The evening before, the patient had again suffered excruciatingly and the physician was sent for.

A medical friend came with him. A mixture, containing carbolic acid was prescribed, and the whole abdomen directed to be rubbed over with Ung. Hydrarg.

Next morning I also saw the patient in company with the two gentlemen above mentioned. This was the condition of the patient: The patient was emaciated to a very great degree; her appearance almost bloodless; the conjunctivæ of the eyelids and the mucous membrane of the lip on being turned over were almost as white as paper. She was very irritable; her pulse 120 and very feeble. For about three weeks, with exceptionally rare intervals, she had not been able to tolerate anything on her stomach but a tablespoonful of thin broth and very often this was rejected almost as soon as taken. The abdomen was excessively distended, more so than I had ever seen it before—the skin tensely drawn; tympanitic, the sound on percussion resembling almost that coming from a drum. In one word, it seemed as if the belly were about to burst. The suffering of the patient was, if anything greater than before.

The gentleman who had advised the evening before the inunction of blue ointment desired it repeated, but calling his attention to the anæmic condition of the patient, the danger of salivation and death, he was ready to forego the inunctions.

It was evident that the painful condition of the abdomen, the disturbed state of the stomach, the fretful condition, were all due to the large amount of gas, distending the stomach and intestines to an enormous degree, and thus impinging upon the other abdominal viscera. It was also evident that the warm poultices which increased the patient's suffering every time they were applied, did so by causing a distension of the gas. The indication was therefore, to expel this enormous quantity of gas from the body as quickly as possible. I advised that for the time all internal medication be stopped, and that the abdomen in its whole circumference be enveloped in a sheet wrung out of ice-water (it was in the hot months)—this cloth as it began to grow warm to be removed and replaced by another freshly wrung out. This was done and at the end of about four hours the patient began having large discharges of gas through the rectum. The next morning we found the abdomen reduced in size more than one-half. The patient stated that she felt like new-born. Her stomach had also tolerated some food. The application was continued for another twenty-four hours, when the abdomen was almost at its natural size. She made a speedy and good recovery. She has been pregnant and delivered of a healthy child since.

CASE II. *Spermatorrhœa.*—D. M., æt 18, rather tall, of fair physical development and of good intelligence. September 15th, 1876, his mother brought him to my office ill, and gave me the following account of his complaint: "About three months previous, the boy (then doing business in K.) complained of great pain in his stomach after eating—he had lost his appetite and his sleep was unrefreshing." She had tried to diet him, but there had been no improvement. From the history of the case and the account he gave me, of the usual articles of food that were furnished him in the place where he did business, I concluded the case to be one of aggravated dyspepsia—I put him upon a diet of bread and milk exclusively, and prescribed for him some appropriate remedy. Some days after I was sent for. I went to the house and found my patient in the following condition: His pulse was very feeble; his temperature 3° below normal; there was a constant tendency to sleep; if he sat in a chair for a moment, he would doze, or stare into vacancy without either talking or answering. The boy, who previously had been very lively and very quick and had taken great interest in all business pursuits, seemed now to have lost all interest for the things of this world. He never smiled; he would not stir a step if not forced to; complete anorexia, and as stated above, if he took anything outside of the bread and milk he suffered great pain. Complained of weakness in his back and in the thighs. In a word he was a confirmed hypochondriac.

From the symptoms above narrated, with the general history given me by his parent of his previous lively condition, I suspected a more serious malady than the mere derangement of the stomach. I questioned him closely and he then disclosed to me that for about a year previous he had been in the habit of practicing self-pollution and had continued it for a period of six months. He had then perceived that it made inroads on his health, the dyspepsia being the first symptom, and that he had discontinued the habit so far as he was conscious of it. Nevertheless, his rest was nightly disturbed by errotic dreams followed by seminal emission. Lately this would occur two and three times a night (sometimes oftener) without the former excitement by dreams, so that he was almost hopeless.

The regimen for the dyspepsia was continued, and Bromide of potassium in grs. xx. doses ordered at bed-time. I also directed that every morning on awakening he should be wrapped in a sheet wrung out of cold water (from the hydrant) from the ensiform cartilage to the knees, and that as soon as the sheet began to get warm, it was to be removed and replaced by a fresh one. This practice to be continued for two hours daily. In the evening he was directed to take a hot sitz bath of several minutes duration.

This Hydropathic treatment was kept up for nearly three weeks. The patient was then so sensitive to cold (especially as the weather was becoming cold) that the slightest application would produce a spasm in the testicles and intestines.

The improvement in these three weeks was really remarkable. His diet which at first consisted only of bread and milk and farinaceous decoctions was amplified in accordance with the increase of appetite and improved digestion until soup, meat and fowl were reached.

The nocturnal emissions which as before stated had occurred every night two or three times, did not occur but three times during the whole three weeks. His manner also underwent great change; he became more lively, went to the theatre, and took some interest in business.

He was also put on proper medication, directed to take long walks, to take horseback exercise, and to keep his mind diverted (from himself). He was discharged from treatment on the 18th of Nov., 1876.

Though still somewhat feeble, he was enabled to attend to business. A trip east in the spring completed his restoration to his former vigor. He has been steadily in business for the last six months and is now as hearty and as happy a young man as it has been my pleasure to see for some time.

Remarks.—It is now a well-established fact, that spermatorrhea is not, as was supposed by Lallemand, merely a disease of the vesicula seminales, but it is also and sometimes only a spinal affection a congestion of the spinal marrow. It is therefore self-evident that a powerful agent like the wet-sheet would be of decided benefit. I ascribe therefore the very rapid improvement in this case, which certainly was a very unpromising one even of this class of cases, to the use of this powerful agent—at the same time, it proved most beneficial to the dyspepsia by the application over the stomach. I have had under observation two cases of dyspepsia, in which the patients of their own accord placed wet (cold) packs over the stomach and with most desirable benefit. That the dyspepsia was brought about by the general breaking down of the vital powers, and consequently a lessening of the digestive force, is very evident, it is also certain, that it contributed greatly to aggravate the mental and physical condition of my patient—it was not however directly dependant upon the spermatorrhœa.

The hot sitz baths were directed to overcome any excess of energy in the vesiculæ seminales which may have been caused by the cold astringent sheet.

GENERAL APPLICATION OF COLD WATER BY THE WET SHEET.

CASE III. *Heat Fever.*—September 1st, 1874, I was requested by a colleague who had to leave the city on business for a few days, to attend for him, baby M. I called that morning and found my patient, a baby one year old, of good size and in good flesh; still nursed at the breast. The history of its illness was: the afternoon of the day before, the baby was siezed with diarrhœa and vomiting, the family physician was called, and prescribed neutral mixture ℥ij., laudanum 12 drops, one teaspoonful to be taken every two hours. Of this mixture the patient had taken about half. The following morning the patient was in a fearful condition: Pulseless, the eyes broken and covered with a film; the respiration gasping; the muscles of the jaw, buccinator and masseter were like bands; the back of the head like a live coal. I did not believe that anything that medicine could do would save the child. Nevertheless to appease the parents, and in accordance with the old adage, as long as there is life there is hope, I directed an ice-bag to be applied to the occiput and flannel clothes wrung out of a strong hot infusion of mustard to be applied to the child's feet—I gave it at the time several teaspoonfuls of a mixture of three parts of water and one part whisky. I also prescribed a few grains of hydrate of chloral which I directed to be administered, so as to relax the muscles.

I returned at 1 P. M. and found no change—I again returned at 3 P. M. The thermometer then indicated a temperature of 106°+, the skin was dry and hot, and it was very evident that this condition could not last long,—the temperature must be reduced. It is hardly needful to say that there was complete loss of consciousness—I had the child placed in a warm bath, the ice-bag being kept upon the head; for the time being it seemed to do some good, but after the child was out of the bath for a few moments it relapsed into its former condition.

I therefore directed the naked child to be wrapped in a sheet wrung out of cold cistern water (having a temperature about 70° F.). This was done, the child placed in its cradle and covered with a comfort; seven minutes by the clock, the sheet was perfectly dry and warm; it was removed and replaced by a fresh one. It was wonderful to observe the change in the child the moment it was wrapped in the wet sheet; there seemed to come over it a feeling of *bien aise*, the respirations became deeper and less frequent, and it presented the appearance of being in a tranquil sleep—the moment the sheet began to grow warm the baby became restless, would roll around, and groan, and the respiration would become gasping—to be relieved again by the removal of the warm, and application of a freshly wrung out sheet. This application of the sheets was continued all the afternoon and night. At 11 P. M., I saw it again, the thermometer now showed 103°. This fall and the general aspect of the case looked more favorable.

The sheets would now remain cool for over half an hour. The procedure was continued regularly all night, the mother doing her duty very attentively and intelligently. The next morning I saw the child at 8 A. M. The thermometer in the axilla showed 101°. Still the child seemed unconscious. At 1 P. M., I saw the child again, and the thermometer indicated 99¾°. Still the child, though appearing easy and comfortable, breathing normally, lay as if in a stupor, did not respond when called by its mother. At 4 P. M., I was again at the house. Just as I was about to place the thermometer under the axilla, the baby rose up in its cradle and called mother. Consciousness was restored. I must add that from the first afternoon till the next day-noon a cloth wrung out of ice-water and renewed when warm, was kept applied to the occiput. Treatment was continued by quinine in small doses and strong coffee. On the 4th of September the child was discharged well.

Remarks.—When I first saw the patient I did not take the temperature because as I stated above the child seemed doomed. On my return at 3 P. M., seeing the child holding on, I applied the thermometer, in order to indicate to me the line of treatment.

It will also be observed from the history that there was a greater lowering in the temperature in the first seven hours, than subsequently.

One important point I will call attention to right here, (and that has been already mentioned in another part of this paper) it will be observed in the record of this case that there was no rise in the temperature from the time of application of the wet sheets. It went down gradually, until in about 24 hours it had returned to the normal standard—giving the system time to accommodate itself to changed conditions — an accommodation that is of vital importance for the recovery of the patient.

THE WARM BATH.

CASE IV. *Septic Fever.*—Last September I was requested to attend Isaac F., a boy of eight years, well-formed and in good flesh.

Found a swelling of the left side of the face and neck, involving the eyelids of that side. The swelling presented an erysipelatous appearance. It seemed to extend from the ear of that side, which was very much scratched up. It seemed that the boy was stung by some poisonous insect, or perhaps while playing with the children (rather dirty ones) of the neighborhood, was scratched by the hand of one of them to which some septic material was adherent. Appropriate treatment soon caused the swelling to disappear. It then recurred on the right side involving the same parts, as on the other side. With proper treatment it disappeared from this side also. On the morning of the tenth day I was called to the patient in a hurry. I found him in bed, both eyelids very much tumefied, closing the eyes completely. He had had a chill in the morning. The thermometer under the axilla indicated a temperature of 105° F. I directed the boy to be placed in a hot bath, to remain therein about ten minutes and then, dripping wet, to be wrapped in a (dry) sheet and to be put to bed. This was done. On my evening visit I found the temperature reduced to 98° F. and patient very much better. On the 13th day in the morning I again found him with a high fever, thermometer showing 105°. The same procedure as before was directed: hot bath, to be wrapped in a sheet and then to bed. At 4 P. M., I found the temperature reduced to 101¾. I must say here that both times, soon after he was put to bed, a profuse perspiration ensued. Quinia was then ordered and the boy made an excellent recovery.

In this case the warm bath was preferred, for the reason that the general condition of the patient did not indicate the necessity for the procedure with the cold sheet as will be readily understood by comparing the two cases, secondly it was preferred to promote transpiration, which I deemed of essential benefit to his case for the reason that I believed it to be due to poisoning either by the sting of an insect or septic material.

The works consulted in the preparation of this article were:

"*Nouveau Dictionaire de Medicine;*" "*A Treatise on Therapeutics and Pharmacy, by Geo. B. Wood;*" "*Therapeutics, Materia Medica and Toxicology. H. C. Wood,* 1875;" "*Trousseau, Clinical Medicine;*" "*Balneotherapie, Dr. Valentin.*"

Art. 2.—A short Sketch of the History of Obstetrics and Gynecology.

By J. A. IRELAND, M. D. Louisville, Ky.

Delivered before the Tri-State Medical Society, at Vincennes, Nov. 2, 1876.

Mr. President and Members of the Tri-State Medical Society:

I have been invited to deliver an address concerning obstetrics and diseases of women. As no particular subject connected with these branches has been assigned to me, I have come to the conclusion, I could not do better than to glance at the history and improvements, which have taken place in the science of obstetrics and gynecology.

There is a wide difference between an obstetrician, and a man who is merely a practitioner of midwifery. The obstetrician must have a good general knowledge of anatomy, physiology, and pathology, and all the surgery connected with his branch as well as the disorders of new-born children. Or in other words, he must be liberally educated in all the branches pertaining to medicine with special qualifications in the wide range of obstetricity.

The mere practitioner of midwifery simply knows enough of the mechanism of labor to superintend a case of natural labor without any complications. Hence we look upon obstetricy as a science, and midwifery as an art which should be based upon scientific principles. Obstetricy embraces a knowledge of woman's nature, all her disorders and accidents, and is a comprehensive science; while midwifery is the mere art of superintending labor without complications. The art of midwifery has existed from the earliest ages, while the science of obstetrics is of more modern origin.

Science has been defined to be methodized or classified knowledge; hence the art of midwifery as it existed among the ancients could have no claim or reason for being called a science. Hence the writings of the Greeks, the Romans, and Arabians on midwifery cannot be called scientific works, for the reason that their knowledge was not based upon a knowledge of anatomy, physiology and other scientific branches of medicine; for instance, the circulation of the blood was not understood until the days of Harvey.

The works of Paré, Guillemeau, etc., were without method, consequently did not come up to the dignity of scientific works, as science is understood to-day. The early English writers, such as Chapman, Giffard, Rainald, and Burton were without classification. Denman, Davis, Robert Lee, the elder Ramsbotham, and many others, methodized their knowledge.

The French and German writers of modern times have written many scientific books on obstetrics.

America has contributed its share of scientific works on the same subject, based upon an accurate and scientific knowledge of all the anatomy and physiology of the organs of reproduction, as well as a knowledge of the mechanism of labor in all the stages.

The planes and straits, curves and diameters, in fact everything pertaining to scientific knowledge has been well understood and described by American authors.

The scientific doctor watches carefully the efforts of the unaided uterus to expel its contents, and when nature fails he simply does precisely that which nature has failed to accomplish. The art of midwifery, based upon the classified, and therefore scientific knowledge of the organs of the female, renders the obstetrician infinitely superior to the man who sits by the bed-side of the parturient woman without that knowledge which enables the one to detect the least departure from natural labor, while the other is profoundly ignorant of the variations from natural labor and how to meet them. These short comings of nature have suggested the many instruments and remedies which have been discovered for the assistance of poor, suffering woman in carrying out one of the purposes of her creation.

The time was, when many women were doomed to death for want of the help which can now be afforded by the skillful obstetrician. The first instruments for the delivery of women were of very rude construction. The first operations in midwifery were performed with sharp pointed instruments for the purpose of extracting the mutilated fœtus. Hippocrates referred to this mode of delivery. Celsus gave particular directions as to how the child should be extracted.

The instrument which he described was nothing more than a cutting hook. The Arabian physicians first established the practice of perforating the head.

Albucassis has described the instruments used since that. Sir Fielding Ould invented one. Smellie invented his scissors which were modified by Johnson. Denman also had a perforator. In more modern times many more have been invented, so that we have little to desire in the way of craniotomy instruments.

Avicenna described the first forceps. About a century after his day, Albucasis described the short and long forceps, which had sharp teeth and certainly mutilated the child almost as much as the perforator, although they were intended to deliver a living child, and to do away with craniotomy. All the forceps up to that time were made with fixed joints, so that both blades had to be introduced at the same time, so they were almost useless.

To the elder Chamberlain, we are somewhat indebted for the modern lock. His son Hugh, in 1670, made a visit to Paris for the purpose of selling his secret. The forceps as then made was a clumsy instrument without fenestra and nothing but a hole in each blade for allowing a tape to pass through for the purpose of securing a sort of lock. Thus one improvement after another has been made until I think we are about as near perfection now as we will ever be in that line. The vectis blunt-hook and craniotomy forceps etc., are now made to order of almost every pattern until we have about everything we can ask for in that line also.

It is said that ergot was used by women who practiced midwifery; It is said that a doctor in the city of Lyons in 1777, rescued it from the hands of a female practitioner and experimented with it until he became satisfied of its great power as a parturient.

It seems that the French and Americans used it long before it was generally used in England. And even to-day its great value, and how to use it, is the subject of animated discussion; especially with regard to its use in midwifery practice.

Among other great improvements in obstetrics we mention the use of anæsthetics. On the 19th of January, 1847, Prof. Simpson, of Edinburg administered sulph. ether for the first time to a parturient woman. Ether had been administered in the city of Boston, in October, 1846, in a case of amputation; but I believe Simpson has the credit of being the first man in the world who administered it to a parturient woman. So well pleased was that great man with its use that he continued to use ether or chloroform to the close of his eventful life.

On the 7th of April, 1847, anæsthesia was practiced in a case of labor conducted, by Dr. N. C. Keep, of Boston; as far as we know that was the first in this country.

On the 20th of February, 1848, anæsthesia was practiced for the first time in Louisville, Kentucky, by the late Prof. Henry Miller, who anæsthetized a parturient woman. I do not know that ether or chloroform had been so administered up to that time on this side of the Alleghany Mountains. Although there has been much opposition to its use in this country, principally through the great opposition set up by the lamented Prof. Meigs, its use has steadily gained ground until it has became almost universal in this country. This great boon is no longer withheld from poor suffering women while carrying out one of the principal objects of their creation. Very recently it has been asserted that chloral hydrate properly administered will accomplish the destruction of pain during labor almost as surely as ether or chloroform. The great good of anæsthetics is to be found in their use while turning, and during the use of instruments.

Transfusion of blood from one person to another, is not of modern date. The time was, when it was thought the old and infirm could be restored to youth and beauty, by receiving blood from the young and beautiful. Finally the surgeons availed themselves of this mode of restoring persons who had bled almost to death.

Obstetricians, never behind others of our noble profession, began to think about trying the virtues of transfusion in post-partum hemorrhage; and many valuable lives have been saved. "Many have gone the way of all the earth," in consequence of transfusion not having been resorted to early enough; others through the unskillful manner of the operation. It is generally acknowledged at this day to be the only hope in many cases.

Cæsarean Section: The earliest writers on medicine are silent on this important subject; Hippocrates, Celsus, Avicenna, Albucasis, are all silent as the grave. Pliny tells us that the elder Scipio Africanus the vanquisher of Hannibal—was introduced into the world by this operation. It has been said that Julius Cæsar was ushered into the world in this unnatural manner.

The earliest mention made of this operation to be found in any *medical* work dates back to 1363. Then it was advised only after the mother's death. Since then, it has been performed many a time upon the living subject with complete success, saving both mother and child. In this great operation we see another evidence of the advance made in obstetricy, for perhaps many, if not all of those unfortunates would have died without it.

The time was, when books were scarce and very costly, that men had some excuse for not being thoroughly posted in obstetricy. But in this age of many books—with the country flooded with medical literature of every kind, there is no reason why the obstetrician should not be as thoroughly posted in everything pertaining to this branch of our noble calling, as the surgeon or the general practitioner. When we think of that noble host of scientific workers in this exalted calling, and when we think that some of the brightest minds of this or any other age have given to the world the fruits of their most profound knowledge, for the benefit of the suffering daughters of Eve, we are constrained to wonder why the people so frequently look upon the practitioner of obstetrics as inferior in point of position to the surgeon, or general practitioner of medicine.

From the four quarters of the Globe come rays of light breaking in upon the minds of the people so that they are beginning to appreciate what science has accomplished for the amelioration of suffering among God's greatest and best gift to man—woman. "The time was, but is not," when parturient women could do without assistance in labor. I say the time was !

We have read that in Corsica no care was formerly taken of lying-in women ; strange to say, their husbands were put to bed and nursed in their place.

In Spain, a similar custom prevailed in Strabo's time.

The Abyssinian women retire by themselves and are delivered without trouble.

North American Indians do the same. After all is over, they wash the new-born in the nearest stream, and go on as if nothing had happened.

Primitive conditions of society gave women immunity from the perils of labor. Among civilized as well as among the uncivilized, where indolence, luxury, and dissipation are not known, we have no account of the troubles we so frequently meet with in refined society.

The Israelitish women of old were delivered without the help of the Egyptian midwives; we read of but two deaths in child-birth. Similar cases are met with now and then among us, but oh ! how few. Modern customs of society have much to do with this.

The modern hot-house plan of educating our daughters, has more to do with this than most persons imagine ; as females are degenerating in strength, obstetricians and gynæcologists, will find employment. As long as the people will not heed the voice of Hygeia, and continue to violate the laws of health, just so long, will the obstetrician and gynecologist find it necessary to burn the midnight oil, in order that they may be prepared to meet the demands of suffering females. The present system of female education prepares young women to live fast and die soon.

As civilization advances diseases multiply; the history of all ages proves this.

The Egyptians found this true before they founded a Medical School at Alexandria, in the time of the Ptolemies. Some modern Egyptologists assert that among the hieroglyphics the shape of the uterus is plainly seen; hence we are to believe that gynecologists lived in those days. Herodotus informs us that specialists existed in those days, for instance, there was a physician for almost every disease. From Biblical literature we learn something about female disorders, in the books of Moses we find reference to the catamenia, etc. The Greeks were instructed by the Egyptians, as the Romans were by the Greeks.

With the writings of the Greek School, which was founded by Hippocrates, commences the history of gynecology. We know it has been said, that the books attributed to those times are spurious, still there can be no question but what they are very ancient. In them we find displacements of the uterus, menstrual disorders, metritis, etc., discussed. Galen, Celsus, and others who probably lived in the first and second centuries treated of gynecology. The vaginal touch, the varieties of leucorrhœa, and ulceration of the womb, the use of the speculum, and what we call periuterine cellutitis, and other affections, were described in a familiar manner.

A young man of Alexandria, Soranus by name, went to Rome in the year 220 before Christ, where he wrote his celebrated work *De Utero et Pudendo Muliebri.* His accurate descriptions of the sexual organs have been much admired. He compared the form of the uterus to a cupping-glass. He also described the relations of this organ to others, in such, manner, as to leave but little doubt, that he was familiar with anatomy. He gave a cause for procidentia, and described with wonderful accuracy, the sympathy known to exist between the uterus and mammary gland. He takes special pains to inform his readers, that he dissected the *human* body, and not monkeys.

St. Luke, who was a physician, described the case of a woman who had an issue of blood twelve years. Aëtius, who flourished in Alexandria in the sixth century after Christ, speaks with such accuracy of many diseases of women, as to leave no doubt that he was familiar with abnormal conditions, such as cellulitis, ulcerated cervix, etc. He also speaks of the speculum, medicated pessaries, sponge tents, caustics for ulcers of the womb, etc., the use of the sound for replacing the uterus, all in such manner as to show his skill in gynecology.

Twelve hundred years after this great man lived, many of these same things have been re-discovered and claimed as something new on the face of the earth. Among the Greeks and Romans, gynecology seems to have been well understood. Aristotle, over two-thousand years ago, thought it quite probable, that all art, and all wisdom had many times been explored, and as frequently forgotten.

The world seems to be learning and forgetting. Old things have passed away, and are now becoming new, as if never before understood. We cannot pass this subject without some further notice, showing how gynecology flourished and then was lost.

The Saracens, A. D., 640, subjugated Egypt and burned the library. It has been said they burned the books to heat their baths.

The physicians of Alexandria understood much of Gynecology, and through their influence sprang up the Arabian School; but about this time sprang up a difficulty which resulted in the downfall of gynecology. By a law of the Mohamedans, no woman was allowed to undergo an examination by a male physician. Thus experience and observation were at an end. The conclusion reached is this: that from about 400 years before Christ, until the destruction of the Alexandrian library, 640 years after Christ, gynecology flourished as a science. It must not be understood that the physicians of those days were as accurate in diagnosis and treatment as many are to-day. After the times referred to, came the dark ages, ignorance and superstition prevailed. Many inventions of the Greeks and Romans, as well as those of the Arabians, were lost forever. It was not until toward the middle of the 17th century, that a ray of light from the ruins of the old schools began to penetrate the mist of darkness and gloom which had hung like the pall of death over many nations of the earth; but especially over the science of gynecology. But that ray of light which penetrated the gloom of darkness entered the mind of Ambrose Paré and Scultetus who began the use of the speculum. From that time to the present, great improvements have been made in the modes of investigation of the diseases peculiar to women. There can be no doubt that the speculum in some form, was invented hundreds of years before Récamier was born. In 1801, it is supposed by many he invented this useful instrument; when in reality he did nothing more than revive its use, and through his instrumentality a new era dawned upon gynecology.

Thus we trace the way-marks of science along the track of time, noting the revivals and decays of valuable discoveries, until we reach the days of Sir J. Y. Simpson, of Edinburg. About the year 1843, he published to the world, and rapidly developed some of the greatest improvements of the age. Lair had never succeeded in introducing the uterine sound into general practice. Simpson not only did this, but also revived the use of sponge tents, etc., in fact he gave gynecology such a move forward that others soon became interested, and have continued the onward movement. We can give only a few names of those who have labored in this important field; such as J. H. Bennett, of London, who had studied in Paris. In 1845 his work on inflammation first appeared. England, France, Germany and America, have all acknowledged its influence. Robert Lee, Tyler Smith, and others of different countries, have been and are laboring in the same field; during this time I am proud to say Americans have not been idle. It seems that the ray of light which sprang up from the dark ages of gynecology in the 17th century has become magnified, until it has spread well nigh over the civilized world. The study of pathology has been so thorough in Germany, that other nations have availed themselves of their discoveries and applied such as suited to the diagnosis and consequently to the treatment of the diseases of women. Why should gynecology be behind other branches of medicine, when such men as Scanzoni, John Clay, Kiwisch, Klob, Tilt, Hewit, Barnes, Simpson, Wells, Athill, and many others of equal celebrity in the old world; and such men as Dewees, Meigs, Hodge, and still later Sims, Thomas, Byford, and others whom we could name in the new world (so called) have been and are working in the vast field of gynecology with such zeal and energy as to accomplish *wonderful* success? I do not think it will be considered egotism on my part if I were to venture the assertion that America has done more to advance scientific investigation than any other nation on earth in the same length of time.

Dr. McDowell, of Kentucky, in the year 1809, performed ovariotomy successfully. This has been considered the first case of the kind in the world. To Kentucky belongs the honor of this great operation, which has been performed thousands of times since with a success, which has given it long since the title of a legitimate surgical operation. We know that other countries have claimed the honor, and that it has been said, that the Greeks and Romans practiced it; but there is no reliable evidence of the fact. That others *have* removed the ovaries in a *healthy* condition for other causes than cystic degeneration, I am ready to admit; but the operation for the complete removal of the diseased organ is quite another thing.

As Americans, we should feel proud of the name of the first ovariotomist. I think the time has come, when American medicine and surgery, can without presumption, claim as high a standard as that of any nation on earth. Every successful gynecologist and every obstetrician, as well as every surgeon and general practitioner, all alike, have earned their distinction as such, by first becoming good general practitioners. Their specialties having been thrust upon them by force of circumstances; hence to be good in either branch, a man must have ripe clinical experience in all. The idea of a young man studying a specialty during his college course, is beyond all question, a most absurd folly. Every difficult case, in any one of the branches, requires of the practitioner a good general knowledge of all the branches of medicine; without this he is no better than a corn-doctor.

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Art. 3.—Motto: "Obsta Principis."—A Plea for High Aims in the Medical Profession.

By G. S. FRANKLIN, A. M., M. D., Chillicothe, Ohio.

The question. — What are the high aims that should be set before the medical profession — is well answered by our "code of ethics" in the watchwords of beneficence, benevolence, charity, self-denial, honor, pure morality, condemnation of quackery, and devotion to the interests and to the progress of our science. The code declares that doing good, and wishing well to all mankind is the bounden duty of the physician. It teaches us that charity is such a love for our fellowmen as to lead us to do all in our power for the prevention and amelioration of their diseases, for indigent persons gratuitously. It inculcates such a humane self-denial as will repress the promptings of self-interest when in conflict with the interest of our fellow-men. It shows us that scrupulous honor between man and man is the only course a well-educated physician should pursue. It enjoins a pure morality of character and conduct as necessary to our usefulness and efficiency. It orders us to condemn quackery as a fraud on human rights and to give our best efforts to its exposure. It encourages us to work earnestly for the best interest of the medical profession, for the progress of medical science, for the enlightenment of the people in all methods of preventing disease, and for the demonstration of all methods of curing it when present.

Can the earnest, honest inquirer after truth say that these are not high aims? That doing good, feeling good-will to our fellowmen, loving all mankind as brothers, wishing to deny our selfish interests for the good of others, having a high sense of honor, leading a pure and moral life, striving to unearth fraud, and working earnestly to improve our science — are aims unworthy of honorable gentleman? In our humble judgment they are high aims. According to the declared judgment of the American Medical Association they are high aims. Comparing them with the highest code of ethics known to mankind—that laid down in the Holy Scriptures—they are high aims. The man whose conduct is in accordance with these noble ideas must be an honorable man, if not a Christian gentleman. And yet some of our misguided brethern wish us to lower these aims, to change our code of ethics to suit the progress of the times, "to declare these beneficent laws for the regulation of our professional conduct inoperative and effete. They imagine they have good grounds for asking that the following changes be made in the code.—

1. That a large measure of self-advertisement be allowed.
2. That consultations should not be strictly confidential.
3. That patent-right should not be prohibited.
4. That the use of patent medicines be allowed.
5. That torture by means of the code should be abolished.
6. That consultations with irregulars be authorized.
7. That private contracts be permitted.
8. That tariff prices should not be inexorably binding.
9. That a varying scale of punishment should be enacted to meet the small and the great offenses indicated by the code.

These are some of the complaints brought against the code which have fallen under our observation. Taking a general view of them, this remarkable fact is evident at once. Selfish interests are more or less at the bottom of all, especially so in the complaints numbered 1, 2, 3, 5, 6. If we look at them through the colored spectacles of selfishness alone they may appear reasonable, but as soon as the clear white light compounded of self-denial, love for humanity, and professional honor, is brought to bear on them their unworthiness is seen at a glance. Looking at them specifically—complaint No 1. asks us to open the tightly closed door of self-advertisement just a tiny bit so that in some small measure our brethren can ape "the ordinary practices of empirics (which) are highly reprehensible in a regular physician." Why do Empirics take this course? Simply to gull the credulous, to trap the unwary by means of lying advertisements and delusive promises, with the plain intent to bleed the people, to put money in their purse. Pure Selfishness, involving utter disregard of the interests of humanity, is the guiding motive. Grasping Avarice, the crying sin of the age, is its parentage. "Oh!" says the complainant, "I will not lie in my advertisements, I will not delude the poor people, I will not steal their money without giving fair value in return."

Perhaps our honest complainant may possibly be able to carry out strictly his asseverations, but does he not know that all mankind are not as honorable as himself? That some of us are liable to be tempted beyond our strength to bear? That men styling themselves honorable and well-educated, just as he does, have justly been charged with outrageous quackery, and proved a curse to their fellowmen? Where would he draw a safe line on the hither side of which is honorable self-advertisement while beyond is Empiricism? Isn't the code wise in telling us not to open the Pandora box even the least bit? In our judgment it certainly is, and we earnestly hope the wisdom of the American Medical Association may judge likewise.

No. 2. Asks that consultations be open and not secret and confidential. A few plain statements exposes the unworthiness of this complaint. Superior men as a rule are called in consultation. Their superiority could easily and honorably be made manifest in an open consultation, and their excellence broadly advertised. The patient and friends would be inclined to change physicians, dissatisfaction would ensue, bitter feelings be engendered, and the final result, though a seeming triumph for the consulting-physician, would be a loss of medical friends and patrons. Killing the goose that laid the golden eggs would be about as wise in comparison. As it stands the rule measurably avoids bitter strife, protects the weak (we cannot all be superior men) and saves the strong from a pitfall they can hardly avoid if the law is changed.

No. 3. Asks that physicians and surgeons be allowed to patent medicines and instruments and still be considered honorable men, devoted to the good of mankind. The pure selfishness of asking a special reward for investing something to benefit suffering humanity shows no devotion to the good of our fellowmen. It would degrade our profession to a money-making trade, would delay the prompt adoption of valuable means for saving life, would foster oppressive monopolies, and would inevitably cripple our usefulness. If a poor and worthy inventor should be demonstrably in need of a special reward, we would be in favor of a direct appeal to the American Medical Association, who, in their wisdom, ought to devise some means of relief.

No. 4. Asks that patent medicines may be used. We all know that the object of patenting a medicine is to secure a monopoly of its manufacture and thereby a greater reward. Here again pure selfishness and a disregard of the claims of suffering humanity is seen. The same good reasons that forbid us to patent instruments or medicines lead us to forbid the use of patent medicines. Besides the prime element of value to the proprietors of a patent medicine is the secrecy of its component parts. What ought we to think of the man who uses medicines on his fellowman, with whose composition and powers he is not acquainted? Is he not an empiric in the worst sense of the term?

No. 5. Asks that torture by means of the code be abolished. By all means let it be abolished wherever it is unjustly inflicted. This should be the earnest endeavor of each or all of us who lay claim to the character of Christian gentlemen, or honorable men. But for the man who intentionally and flagrantly disobeys the provisions of the code and strives to nullify its high aims, let the only punishment we can inflict—a loss of position among the brotherhood of high aims—be adjudged as his righteous meed. "Let the galled jade wince," for he deserves it.

No. 6. Asks that consultation be allowed with irregulars. And why? "Because the golden rule"—truly called golden in this application of it—says." "Do unto others as you would have others do unto you." "Because we are only performing our duty to humanity in trying to save human life whether the consultee be regular or irregular, white or black, male or female." "Because, even if we believe Homœopathy, or any other exclusive dogma, to be a humbug, we can rescue the deluded sick man from its meshes and teach him the superiority of the regular medical profession." Such are the arguments in favor of consultation with irregulars and nullifying the rule as laid down by the code. In answer to the question—shall we do evil that good may come?—they say. "Certainly we shall." Although we know that to encourage quackery and aid to fasten its fangs on mankind is an unmitigated evil, will possibly be the direct cause of thousands of deaths under the care of incompetent men who may be certified to the community as good doctors by our recognition of their claims, yet it is our duty to save human life under any and all circumstances. Although the wisdom of the American Medical Assocsation has declared it to be "the duty of physicians who are witnesses of the enormities committed by quackery and the injury of health and even the destruction of life caused by the use of quack medicines, to enlighten the public on these subjects, and to expose the injuries sustained by the unwary from the devices and pretensions of artful empirics and impostors"—yet we think otherwise—because,—because,—because, by consulting with these quacks we may possibly be able to save human life. Gentlemen, you offend the common sense of every right-minded man by such specious devices and artful pretensions. You mean to say that such consultations may be profitable to you in a golden sense so long as your medical brethern wink at such unprofessional and dishonorable conduct. If you were notified that such conduct must cease under pain of being considered an outlaw, a quack, and utterly beyond the pale of regular professional intercourse, how long do you think you could advance such arguments or carry them out in your professional conduct? Tell the truth and shame the devil by saying that selfish greed is the best reason you can give for such conduct and you will find plenty of good men who will agree with you at once.

No. 7. Asks that private contracts be permitted. The code itself does not contain a fixed and definite law as to contracts at all, and any rule on this subject is only derived by implication; but a declaration by the Judicial Council endorsed by the Association says that "contracts may be accepted when offered by National, State, County and Municipal authorities, or by strictly charitable institutions. Probably every one agrees that this is fair and right. As to private contracts with incorporated companies, large plantations, large schools and other collective bodies of men. We believe there may be an honest difference of opinion as to their righteousness; certainly some of the same good reasons obtain for allowing them as exist in the Army and Navy for instance. If the pernicious custom of under-bidding and under-valueing the services of the profession could only be regulated most of the objections might fall to the ground. How to accomplish this desirable end would be a question to be settled by the wisdom of the Association. It becomes the duty of those advocating this change to present some well digested rule on the subject which the Association can honorably adopt. As to contracts in private families we think they should be discouraged as unavoidably leading to under-bidding and undervaluation of services without any adequate reason therefor.

No. 8. Asks that tariff prices should not be made inexorably binding. The gentleman making this complaint against the code, elsewhere remarks that it is hardly ever read by physicians and few know exactly what it contains. I am forced to believe this statement, when a highly educated and highly respected physician, such as he no doubt is, shows himself unacquainted with the enactment on this point. The Code says "it should be deemed a point of honor to adhere to these rules" (the local tariff) "*with as* *much uniformity as varying circumstances will permit.*" Does not that give him latitude enough? His local society is wrong in making a cast-iron rule and he has only to point to the above to prove it. If he undertakes a righteous variation from the local tariff and is brought to bar by malice or envy his redress is sure, if not at home then at a higher court. We think this is all that a reasonable man should ask. Certainly a local tariff is a good and proper thing and should be encouraged but it cannot be inexorable in the face of justice itself.

No. 9. Asks that a varying scale of punishment should be enacted to meet the small and the great offences indicated by the code. The code makes no small and great offences. Intentional violation of its enactment is made worthy of the only punishment of which the Association is capable. If any enactment is wrongful and unrighteous and can be so demonstrated, we have no doubt the wisdom of the Association could be persuaded to change it. Certainly, the collective wisdom of the large body of the well-educated men, presumably the pick of the profession, is a better guide to truth and justice than the opinion of one man, or any smaller body of men. "In a multitude of counsellors there is safety," sayeth the wise man.

We repeat, that these complaints all have their origin in an undue prominence given to selfish interests. To make money—more money—and yet more money, most of us will imperil our souls wellfare and degrade our aims until they become unworthy of any honorable man. Whoever measures his success in life by the amount of money he has been able to accumulate, has erected for himself what may prove the falsest of standards. "Truly"—says the apostle—"the love of money is the root of all evil, which while some coveted after, they have erred from the faith, and pierced themselves through with many sorrows." We all need a finger-post to point out to us the way in which we should walk. We all need the help of our true friends—"faithful are the wounds of a friend"—when we have erred to bring us back to a realizing sense of right. The code lays its chastening hand upon us, in sorrow not in anger, in correction not in persecution, tells us we have done wrong, invites us to repentance, and promises absolution if our repentance is demonstrated. If all men were angels we would need no code, but who can claim this truthfully? As we have the best reasons for believing that all men are poor miserable sinners, we, being only men, need watching, warning and chastening lest we depart from the straight and narrow path that leads to the highest professional aims. The "Code of Ethics" evidently wishes to perfect in us a brotherhood of high aims. If any of us considers its edicts as hard to bear, let him examine the foundation of the edict, take a broad and honorable view of its operation, and then make out a complaint which he can demonstrate to be a just one. If he cannot demonstrate that his complaint is a just one and still intentionally violates the edict he thinks he cannot obey, let him accept his position as a quack, an outlaw, an outcast from the BROTHERHOOD OF HIGH AIMS, and go where his "unshackled feet" can tread any path he chooses and he can still be unwhipt of justice as administered by "the Code."

Art. 4.—Diseases of the Rectum. Villous Tumors of the Rectum.

BY REUBEN A. VANCE, M. D., Gallipolis, Ohio,

Vice President of the Gallia County, Ohio, Medical Society; Member of the Medical Society of the County of New York, etc, etc.

No. IV.

It is now nearly a year since a patient came under my observation suffering from a peculiar bleeding growth of the rectum, which protruded from the anus, and an account of the case will serve to introduce what I shall have to say in reference to villous degeneration of the lower part of the large intestine. The following history was prepared for the Gallia County Medical Society, before which body it was presented January 3rd, 1877.

The patient, a man in his 34th year, is a resident of Kanawha County, W. Va., by occupation a coal boatman, and during August 1876, he consulted me for the relief of what he called "bleeding piles." On examination I found the posterior surface of the rectum, just above the internal sphincter, the seat of a papillated growth, the separate projections of which could be easily felt with the finger. The tumor occupied the canal of the rectum; it was circular in form, an inch and three-quarters in diameter and projected nearly an inch and a half above the surface of the mucous membrane to which it was directly attached, there being no pedicle, or neck. The vascular tufts which formed the free surface of the growth bled when touched; the sphincters were somewhat atonied, and the tumor protruded and bled profusely whenever the patient attempted any violent muscular exertion. When *in situ* the lower border of the internal sphincter corresponded with the lower edge of the growth, while the sponge-like mass of the latter could be easily felt by the exploring finger, filling and distending the pouch-like dilatation of the rectum, behind the trigone of the bladder. The patient said that for more than two years he had been suffering from rectal hæmorrhages, together with a profuse, gelatinous, offensive discharge. The bleeding preceded the "running;" had been slight at first, but as time passed the hæmorrhages became more frequent and profuse, until, when I saw him in the summer of 1876, more or less blood was lost every day, while the mucous flow from the growth and the irritated membrane adjacent, was very copious and exhausting. Early in January 1876—shortly after New Year's day of that year —he first noticed a protrusion. When, on this occasion, "the body came down"—as he called it—there was a violent hæmorrhage, together with pain, prostration, and a tendency to syncope. Finally he was able to return the part without assistance, and for two days, remained in bed. From this time he always lost more or less blood when his bowels moved, and the protrusion of the parts, slight at first, gradually became more extensive. The latter trouble soon became so annoying that in the course of two or three months he was compelled to lay flat on his face and elevate his hips, in order to obtain relief. This measure never failed to cause the tumor to recede within the rectum, and shortly before he came under my care, he was compelled to resort to this maneuver three or four times during the day. This postural treatment was his own device, and for several months before he was operated upon, he rarely touched the growth, but depended entirely upon the influence which he found could be exercised over it, by elevating the parts. Notwithstanding all his care the constant sensation as if there was a foreign body in the rectum would occasionally lead to violent expulsive efforts—at such times hæmorrhage would occur. When he came under my care he was very anæmic; the prolabia were pale; a venous hum was audible in the neck, and a bellow's mumur attended the first sound of the heart. Astringents were used by enema, but they only benefited the hæmorrhage temporarily. The pulse was 88 — 93 per minute, the impulse, short and sharp, the volume, large but soft, and a peculiar thrilling character could be recognized by the finger of the observer. He was ordered to take a teaspoonful of the following mixture, in a wine-glassful of water, before each meal:

℞	Strychniæ Sulphatis,	grs. j,
	Ferri et Quiniæ Citratis.	ʒij,
	Solve, et adde	
	Infus. Quassiæ,	℥vj.
M.		

In addition, he was instructed to take from an ounce, to an ounce and a half of cod-liver oil, combined with an equal quantity of olive oil, after each meal, while his food was to consist mainly of meat and milk with bread, but no vegetables. If the bowels moved more than twice, daily, the olive oil was to be suspended for twenty-four hours, and then resumed. With these instructions he returned home in August, intending to come back for further treatment as soon as the weather grew cooler.

Early in October, 1876, he again presented himself. A decided improvement was noticeable in his physical condition — his color was better, and he reported that while at home his appetite was good, and his health better than for two years. The oil kept his bowels freely open, and the daily hæmorrhage had been smaller in quantity than for months before. Finding that his physical condition warranted the step, and that he was anxious to have it done, I at once prepared to operate. Accordingly on the morning of Oct. 5th, the bowels having been thoroughly emptied the night before, I exposed the diseased part by the aid of a stimulating enema, and pierced the base of the growth with a large, slightly curved needle, armed with a double ligature. Three other double ligatures were passed in the same way. Commencing with the threads which enclosed the largest mass of the growth, gentle compression was made, in order to observe the effect of a gradual interruption of the circulation through the tumor, and then the ligatures were drawn tightly, and tied. When the four ligatures were secured it was noticable that they compressed the part of the growth which was situated on a plane beneath the level of the surrounding mucous membrane. No endeavor was made to remove any portion of the villous prolongations of the tumor, but after the ligatures were tightened, their loose ends were removed and the whole projecting mass was returned within the cavity of the rectum. The patient was directed to remain quietly in bed, and an opiate was administered to keep the bowels at rest. The operation was conducted without anæsthetics, did not seem to cause any great amount of pain, and was not followed by severe inflammatory fever during the sloughing of the ligated tissues. For ten days the patient remained in-doors; on the seventh day after the operation (Oct. 12th) the ligature enclosing the smallest part of the tumor came away; on the ninth day (Oct. 14th) all dropped off but one; and on the eleventh day (Oct. 16th) that separated. The discharge from the rectum was quite free and extremely offensive on the third day after the operation; on the seventh, (Oct. 12th) a large, sloughy and badly smelling mass was voided; after that, the quantity voided daily became much less. On the 17th of October, twelve days after the operation, I made a careful digital examination. There had not been a drop of blood lost since the operation, and for five days the discharge had steadily diminished, while its odor grew less and less offensive. At the time of the examination there was a slight serous discharge from the rectum; the bowels had moved but twice since the 5th, and then only as the effect of medicine administered the night of the 15th. When the finger was introduced, a smooth, healthy, granulating surface occupied the site of the tumor, and a mass of inflammatory exudation could be felt behind the rectum. The patient was very anxious to return home, and left on the evening of Oct. 20th, promising to use the cod-liver oil and olive oil as before, in quantities to keep his bowels free. On the 25th of Nov., between five and six weeks subsequently, I again saw him, and repeated the digital examination. The cicatrix of the wound was thickened and indurated, but the swelling behind the rectum had diminished greatly. While at home this time, the bowel protruded whenever he passed his motions, and could be replaced only after tedious manipulation. When returned, it readily became everted. There is but little contraction of the sphincter when the exploring finger is introduced into the rectum. An impromptu rectal bougie (a candle) was advised. He remained in town a fortnight in order that hypodermic injections of strychnia might be administered daily for the relief of the atony of the sphincters. Ten injections in all were given; the first few, the one-hundredth of a grain in strength—the last six, each containing the thirtieth of a grain; and the effect was all that could have been desired. The everted and prolapsed mucous membrane returned within the bowel; the internal sphincter gave evidence of returning functional power; and when the patient went home December 9th, there was no longer incontinency of either wind or feces—symptoms that distressed him greatly but two weeks before. Between Christmas and New Year, I again saw and examined this patient. There was no longer any induration perceptible to the touch; the sphincters possessed full power; and the site of the former tumor was suple and healthy. No pain was complained of; every function was properly performed; and so far as the rectum was concerned, the man was in perfect health. My thanks are due to Dr. Frederick A. Cromley, of this city, for valuable assistance in the management of this case.

The phenomena presented by this patient forcibly reminded me of the details of another case of somewhat similar character, which came under my observation in the following manner: Shortly after the Bureau for the Relief of the Out-Door Poor was established at Bellevue Hospital, about ten years ago, Dr. Leroy M. Yale, now a Lecturer in Bellevue Hospital Medical College, was appointed Examining Physician for the different Hospitals under the care of the Commissioners of Public Charities and Correction, of New York City. It was this gentleman's duty to examine and allot the immense number of patients who daily made application for Hospital treatment, to the institution best suited for the care of the individual cases. Dr. Yale was called out of the city for a number of weeks, and while performing this duty for him, during his absence, my attention was called to a patient suffering from disease of the rectum, who had obtained a Hospital permit from the Commissioners, and desired admission into Bellevue. The history he gave told of hæmorrhages, recurring daily for seven months, a constant viscid, fœtid discharge from the rectum, with gradual exhaustion. He was originally a stout, hearty, middle-aged laborer, but when he applied for admission, was pale, much emaciated and with scarcely sufficient strength to walk into the examining room. The tumor was attached to the posterior part of the rectum; it protruded considerably when the patient was erect, and did not disappear when he assumed the recumbent posture; the discharge was very offensive; the growth was of a dark red color and split up readily into a great number of thin, independent layers which bled excessively when handled. The lobulated character of the mass was very apparent. The patient was assigned to Charity Hospital, on Blackwell's Island, but not caring to go to that institution, left the examining room with his friends, and I never heard of him again.

In Mr. Quain's work on Diseases of the Rectum is related the following case:

"A lady, aged 68 years, who commonly had good health though not a robust person, began to suffer inconvenience in the lower bowel about seven years before she came under my care, and for the last two years she was in constant uneasiness or pain. I found that with every fæcal evacuation and even with the escape of flatus, a tumor was protruded from the bowel. The descent of the tumor was attended with a discharge of slimy mucous, and the loss of blood to a considerable amount. The mass was replaced each time by a servant. The patient had become much enfeebled, and her face and lips and tongue were blanched, doubtless on account of the long-continued losses of blood.

"The tumor, when partially prolapsed, was found to be a large pulpy mass, separable into several loosely connected lobes, consisting of pencil-like processes, the whole surface being covered over with blood and mucous. The connection with the bowel was nearly three inches from its orifice and towards its back part The pedicle was about two inches broad. I removed the growth, guarding against hæmorrhage with a ligature. On one occasion, about three weeks from the operation, there was a discharge of blood with the fæcal evacuation. But there was no return of the hæmorrhage, and with the exception mentioned, the patient did well uninterruptedly. Now, after the elapse of more than eighteen months from the removal of the morbid mass, this lady is free from inconvenience of any kind in the bowel, as well as from any indication of the disease.*"

Mr. Allingham refers to the above case in his work, and incidentally mentions it as the only one which had fallen under Mr. Quain's observation†. He also alludes to three examples of the growth which he had personally examined—two in his own practice, and one in St. Mark's Hospital, under the care of his colleague, Mr. Gowlland. He says that the leading symptoms are the descent of a tumor, on the bowels acting, or on moving about, and an abundant discharge of glairy mucus "resembling the albumen of an unboiled egg." The last was the most prominent symptom in one of his cases, and in the patient of Mr. Gowlland—even when the tumors were not protruding this fluid poured freely from the anal orifice. Although Mr. Allingham detected a large artery entering the tumor in one patient, yet in neither of his cases was blood lost to any extent, and in neither was any great amount of pain complained of. Both patients were women, one 59, and the other, 62 years of age. The following is his description of the tumor:

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* QUAIN, *The Diseases of the Rectum*, Second Edition, N. Y., 1855.

† ALLINGHAM, *Fistula, Hæmorrhoids, etc.*, Phila. American Reprint of Second Edition, 1873, p. 258.

"The tumor consists of a lobulated, pulpy mass, with long villous-like processes studding its surface; it resembles exactly— though the villi are much larger—the growth of the same name found in the bladder. It is attached to the bowel by a stem, broad rather than round, and this appears to me to be more like an elongation or dragging down of the mucous and sub-mucous tissue of the bowel, than a development. The peduncle may be two or three inches in length; in my patients it was attached to the perineal surface of the bowel. When this is the case, it is a practical point worth remembering that it is possible that a pouch of peritoneum may be dragged down by a tumor into the pedicle, and if it were tied close to its origin from the bowel, that membrane might be included in the ligature."

Mr. Syme details the history of two patients upon whom he operated for soft, vascular and bleeding polypi, which were evidently cases of this disease.* In one patient, the tumor was the size of an orange and had bled so profusely as to cause almost fatal exhaustion—in this case he excised the growth. In the other, in which the disease was recognized by the great hemorrhage it caused, the tumor was ligated within the rectum.

The following is an account of the appearance presented by the growth which Mr. Quain removed from the patient whose history has already been detailed:

"The tumor was about five inches long by two in breadth. It was composed of elongated slender processes hanging loosely together upon a basis of white fibrous tissue. The processes resembled villi, but on a colossal scale, and were a little enlarged at the ends—club-shaped. They were highly vascular; arteries were detected even in the most minute; and it was observed by Dr. Jenner that each was covered with a delicate basement membrane, over which was a layer of columnar epithelium. The broad characteristics of the growth seemed to me, to be the being formed of elongated processes—villi (whence the distinctive name?); the want of solidity or firmness—from the small amount of connective tissue; the extreme vascularity, and the slight restraint to the escape of blood, on account, apparently, of the coats of the vessels being extremely thin and but slightly protected from without. When placed in spirit for preservation, the elongated mass, besides undergoing the usual change of color, owing to the escape of blood, shrank into a rounded body the size of an orange, the villous processes, at the same time, shrinking in proportion."*

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* SYME, *Diseases of the Rectum*, Second Edition.

Mr. Quain also considered the question of malignant character of the growth—for there could be no doubt but what it was of the same character as those formations in the bladder to which Rokitansky applied the name "villous cancer"—but, from his personal acquaintance with these tumors of the bladder and rectum, could entertain no other opinion than that they were benign. In this, he is warmly seconded by Mr. Allingham who does not consider these growths connected in any way with cancer.

Mr. Curling refers to the case at St. Mark's Hospital, under the care of Mr. Gowlland, and says that it was the largest tumor of the kind he ever saw.† From his reference to the case, it appears that the patient was a middle-aged man; that the tumor was successfully removed by operation; and that the specimen can be found in the London Hospital Museum. Dr. A. Clark examined it microscopically and described it as a dense outgrowth of areolar tissue, permeated by blood-vessels, which assume a papillary form, the papillæ being flattened and curled so as to represent hollow cylinders clothed with layers of epithelium—the free layers being cylindrical. Mr. Curling also considers the villous tumor as an innocent growth, and one not apt to return after complete removal.

In the description of Mr. Quain's case. I have quoted from the second edition of his treatise on "The Diseases of the Rectum" which bears the imprint of Samuel S., and William Wood, of New York—the only edition to which I have access. Judging from the following, taken from the chapter on villous tumors at the eighty-fifth page of the American reprint of the fourth edition of Mr.

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*QUAIN, l. c.

† CURLING, *Diseases of the Rectum*, Fourth Edition, Philadelphia, 1876.

Curling's "Observations on the Diseases of the Rectum," there is, evidently, some other publication by Mr. Quain, which I have not seen :

"It has been particularly described by Mr. Quain under the name of a "Peculiar Bleeding Tumor of the Rectum," but as it closely resembles the outgrowths found in the bladder, usually called *villous*, I prefer the latter term. Mr. Quain met with it in two cases in females, one middle-aged, and the other, sixty-eight."

The entire number of recorded cases is very small. Ascribing two cases to Mr. Quain, two to Mr. Syme, two to Mr. Allingham, and including the case of Mr. Gowlland which is alluded to by both Mr. Allingham and Mr. Curling, there are only seven examples of this affection referred to in the standard works on diseases of the rectum, in the English language. In fact, several special treatises do not mention the disease at all.

The small number of these cases, as well as the meagerness of the history of some of them, renders any analysis of the phenomena presented utterly useless. Villous growths are not limited, however, to any particular part of the anal outlet, but seem to develop, indifferently, from any portion of the mucous lining of the lower fourth of the rectum. In Paget's Surgical Pathology can be found an exposition of the views of Rokitansky which will furnish the best illustration of the morbid anatomy of villous tumors, accessible to English readers, with which the writer is acquainted.

In reference to the details of treatment in my own case, there is one point about which I wish to say a few words. This relates to the procedure resorted to for the purpose of restoring power to the atonied sphincters. In April 1870, I published an article in the *Journal of Psychological Medicine* on "The Treatment of Paralysis by Means of Hypodermic Injections of Strychnia," and in October, 1871, the *Medical World* contained a description of a new instrument for the injection of strychnia, from my pen, which formed part of a communication on the subject of the "Prevention of Abscesses in Hypodermic Medication." The references made to the early history of this method led to an investigation of this subject, so far as the employment of remedies sub-cutaneously in the United States was concerned, and the conclusion at which I arrived was substantially that which appears in the last edition of Dr. Bartholow's *Manual of Hypodermic Medication* — that is, that as early as 1839, two physicians to the New York City Dispensary (one of whom is the present President of the Faculty of the Bellevue Hospital Medical College, Professor Isaac E. Taylor, M. D., the distinguished Obstetric Physician to Bellevue Hospital and Emeritus Professor of Obstetrics and Diseases of Women in the College connected with that Hospital) were in the habit of treating cases of neuralgia and paralysis by piercing the skin with a lancet and then injecting solutions of morphia and strychnia under the integument with an Anel's Syringe. In a note from Dr. Taylor, written in 1870, I was furnished with the details of a case of paraphlegia, which was successfully treated in this manner, and, if I mistake not, with an account of a case of prolapsus recti, in which power was restored to the atonied sphincters by strychnia used in the same way. These cases were treated four years, at least, before Wood's first experiments (1843) and sixteen years prior to his first publication (1855). The first published observations upon the sub-cutaneous employment of strychnia in cases of diseases of the rectum relate to the cure of a case of prolapse of the rectum by M. Foucher, at the Foundling Hospital of Paris, in 1859, and appeared in the *Revue de Ther. et Jour. de Med. et Chir. Pratique*, August, 1860. The value of this method in the treatment of patients in whom the anal sphincters have lost power is well illustrated by the result in the case I have detailed. I shall have occasion to refer to this subject again and will dwell upon it at greater length when I review the therapeutical measures which can be resorted to for the relief of prolapse of the rectum.

There can be but little doubt but what the ligature is better than the knife in the removal of growths of this character from the rectum. The complete control which can be maintained over the flow of blood, at all times, much more than counter-balances the benefits which accrue from the rapidity and completeness of the excision. Yet there are cases in which it is necessary to depart from the general custom and resort to the knife—one of Mr. Syme's patients seems to have been a case in point. The patient had lost so much blood that he was on the verge of death from exhaustion, and, as the tumor was the size of an orange, there was very little chance of a favorable issue, had the tedious and exhausting operation of a ligature been resorted to.

Art. 5.—Notes on the Epidemiology of Ohio. Study of the Effects of Altitude, Temperature and Drainage on Diseases. Mortality Statistics of the State, etc.

By THOMAS C. MINOR, M. D., Cincinnati, Ohio.

SECTION 3D.

In order to study the epidemiology of a State, the medical writer is obliged to draw his material from three different sources, i. e:

First, Government Reports.
Second, Medical Journals.
Third, Local Health Reports.

Class 1st.—Government Reports, include the mortality returns made by United States Marshals to the Census Bureau at Washington City. The Census returns, prior to 1850, are almost wholly valueless, so far as regards matters of medical interest. The Census returns of 1860 and 1870, however, although incomplete, are of immense value, for they afford a basis from which interesting data may be drawn. It is a matter of extreme regret, that in the volumes on vital statistics published within the last twenty years by the Government, the mortality return from each county and township in every State were not given; had this been done the task of the epidemiologist would have been greatly smoothed, while the public health would have been immensely benefitted by the discovery of the causes producing a high mortality rate within the limits of certain localities. Given the causes of death in any one locality, say a county for instance, for a definite period of time, it is an easy matter to ascertain what diseases are most prevalent and fatal, and sanitary medicine stands ready to apply the most approved means of prevention. The reports of surgeons in the United States Army, at the different military stations, afford a mass of valuable medical statistics regarding the prevalent diseases in the neighborhood of such posts. The medical statistics of the "Provost Marshal General's Office," together with the reports made by "Examining Surgeons," of the various "Congressional Districts" in the northern and western States, are also exceedingly useful, giving, as they do, brief statements in reference to the topography and epidemiology of certain counties in the United States.

Class 2nd.—Medical Journals; containing the papers of physicians, descriptive of epidemics observed in various sections of the country. Unfortunately, these papers are few in number; few as they are however, they furnish the most complete and reliable information relative to the epidemiology of the western continent. Included in this class, are the special reports of health officers and sanitarians, which are usually published in medical periodicals prior to their insertion in official reports.

Class 3d.—Local Health Reports; the compilations of vital statistics, made by the State, county and city boards of health. These reports give, in the majority of instances, reliable information regarding the prevalent forms of disease observable at various points in the Union; yet compared with the vast extent of territory included within the limits of North America, the number of such boards is small.

Any one choosing to write at the present time, on the *epidemiology of the United States*, would have at his disposal the immense quantity of valuable material to be derived from the sources named. But two American writers have thus far attempted this Herculean task: i. e.; Dr. Daniel Drake,* of Cincinnati; and Dr. Joseph Jones, of New Orleans.† Dr. Drake's work, written almost thirty years since, at a time when the opportunities for bibliographical research and reference were limited, at a period when material for an elaborate work on the epidemiology of the country was almost wholly wanting, stands to-day, as it will ever stand, a monument to the memory of its industrious, erudite and distinguished author. As gigantic as was this self-imposed task, Dr. Drake had almost completed it before he died. Within the past year Dr. Joseph Jones, of New Orleans, has commenced the publication of a superb work, containing "Investigations on the Geographical distribution, causes, nature, relations and treatment of the various diseases of the United States." The first volume of Dr. Jones' work has already been published and it is to be sincerely hoped that the latter author may live to reap the reward of a life-time's labor.

From the different sources above enumerated, have been collected and collated all the available material bearing on the especial study of epidemiology of Ohio. The author is well aware that his paper is far from being complete, nevertheless it is to be hoped that it may be of some service to that more able writer who must inevitably, in the not far off future, study the zymotic diseases of a great and growing State.

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* The principal diseases of the Interior Valley of North America—Cincinnati—1850.

† Medical and Surgical Memoirs—New Orleans—1876.

We shall take take up first the Census reports of 1850, 1860, 1870:

The Census of 1850, does not give the special causes of death in the various States; it gives however, the total mortality from all causes in each and every county of the United States. The mortality statistics of this Census are probably under-estimates in most cases, nevertheless the writer has reasons for believing that in the case of the State of Ohio, the mortality figures are rather over than under-estimated. A table giving the mortality in the different counties of Ohio from all causes, and the proportion of deaths to the living population of each county, has accordingly been compiled. The counties will be found ranged in the order of their comparative healthfulness. One thing must not be lost sight of in this connection, i. e.: that this estimate is but for a single year. The sanitary condition of various counties, as evidenced by the Census return of 1850, must be subject to some variations from time to time, and cannot therefore be constant; taking the table as a whole however, a fact, long known and often spoken of by medical writers in the State, can be fully demonstrated, i. e.: that north-eastern and eastern Ohio and the elevated portions of central Ohio, are the freest from malarial influences.

In the Western Reserve counties, for instance, where intermittents and remittents were common thirty years ago, these forms of disease have almost disappeared, and been replaced to a certain degree by true typhoid, or typho-malarial fevers.

TABLE SHOWING THE MORTALITY FROM ALL CAUSES IN THE DIFFERENT COUNTIES OF OHIO—CENSUS OF 1850.

County.	*Population.*	*Ratio of Death to Population.*
Auglaize.	11,338.	1 to 18.
Erie.	18,568.	1 to 28.
Hamilton.	156,844.	1 to 28.
Mercer.	7,712.	1 to 44.
Lucas.	12,363.	1 to 47.
Miami.	24,999.	1 to 48.
Clermont.	30,455.	1 to 49.
Fulton.	7,781.	1 to 49.
Warren.	25,560.	1 to 51.
Greene.	21,946.	1 to 56.
Shelby.	13,958.	1 to 57.
Butler.	30,789.	1 to 58.
Brown.	27,332.	1 to 60.
Preble.	21,736.	1 to 60.
Van Wert.	4,793.	1 to 61.
Holmes.	20,452.	1 to 62.
Cuyahoga.	48,099.	1 to 63.
Meigs.	17,971.	1 to 63.
Tuscarawas.	31,761.	1 to 63.
Union.	12,204.	1 to 64.
Clarke.	22,178.	1 to 66.
Pike.	10,953.	1 to 66.
Montgomery.	38,218.	1 to 69.
Putnam.	7,221.	1 to 70.
Franklin.	42,909.	1 to 70.
Jefferson.	29,133.	1 to 71.

County.	*Population.*	*Ratio of Death to Population.*	*County.*	*Population.*	*Ratio of Death to Population.*
Hancock.	16,751.	1 to 74.	Carroll.	17,685.	1 to 97.
Henry.	3,434.	1 to 74.	Marion.	12,618.	1 to 97.
Summit.	27,485.	1 to 74.	Monroe.	28,351.	1 to 98.
Huron.	26,203.	1 to 76.	Knox.	28,872.	1 to 99.
Sandusky.	14,305.	1 to 77.	Scioto.	18,428.	1 to 100.
Allen.	12,109.	1 to 77.	Medina.	24,441.	1 to 101.
Lorain.	26,086.	1 to 78.	Washington.	29,540.	1 to 102.
Belmont.	34,600.	1 to 78.	Williams.	8,018.	1 to 103.
Seneca.	27,104.	1 to 79.	Portage.	24,419.	1 to 103.
Licking.	38,846.	1 to 82.	Lawrence.	15,246.	1 to 103.
Gallia.	17,063.	1 to 83.	Ashtabula.	28,767.	1 to 104.
Hocking.	14,119.	1 to 85.	Wyandott.	11,194.	1 to 105.
Wayne.	32,981.	1 to 87.	Stark.	38,878.	1 to 106.
Perry.	20,775.	1 to 87.	Geauga.	17,827.	1 to 111.
Champaign.	19,782.	1 to 87.	Lake.	14,654.	1 to 111.
Delaware.	21,817.	1 to 87.	Vinton.	9,353.	1 to 116.
Madison.	10,015.	1 to 87.	Athens.	18,215.	1 to 117.
Fairfield.	30,264.	1 to 88.	Jackson.	12,719.	1 to 117.
Logan.	19,162.	1 to 88.	Columbiana.	33,621.	1 to 118.
Richland.	30,879.	1 to 88.	Coshocton.	25,674.	1 to 118.
Pickaway.	21,006.	1 to 89.	Harrison.	20,157.	1 to 118.
Paulding.	1,766.	1 to 89.	Muskingum.	45,049.	1 to 118.
Morrow.	20,280.	1 to 89.	Ross.	32,074.	1 to 118.
Ottawa.	3,308.	1 to 90.	Morgan.	28,585.	1 to 124.
Defiance.	6,966.	1 to 92.	Trumbull.	30,490.	1 to 132.
Ashland.	23,813.	1 to 92.	Mahoning.	23,735.	1 to 134.
Darke.	20,276.	1 to 93.	Guernsey.	30,438.	1 to 136.
Adams.	18,883.	1 to 95.	Fayette.	12,726.	1 to 143.
Clinton.	18,838.	1 to 95.	Wood.	9,157.	1 to 218.
Hardin.	8,251.	1 to 95.			

A glance at the table will show at once that the healthiest portion of Ohio, is the eastern and northeastern section of the State. The high rate of mortality in certain counties, as for instance, Erie and Hamilton, during the Census year ending June, 1850, was owing to the fact that the most severe and malignant epidemic of cholera which ever visited Ohio occurred in 1849, 1850. During the visitation of this epidemic, dysentery also prevailed to an alarming extent. Carroll estimated the deaths in the city of Cincinnati, from cholera alone, to have been upwards of 6000, or a mortality of one to every sixteen of the total population. Sandusky suffered in an equal degree during the same period. The effects seemingly exercised by altitude and soil on the health of the State is at once strikingly apparent, if reference to the topography of the various counties be made. Counties extending over the Carboniferous System, especially over the Coal Measures, were by far the healthiest. The unhealthiest portion of the State was composed of the counties overlying the Silurian and Devonian Systems, with the exception of those counties in which a high altitude more than counter-balanced the influence exercised by geological formation. Even cholera and dysentery seemed to have been strongly modified by the influences named, for although both these diseases prevailed on the various formations, and at high and low elevations, nevertheless in eastern and northeastern Ohio neither disease was at all prevalent. Over the Carboniferous System its ravages were almost wholly confined to those counties bordering on or intersected by the larger water courses of the State, as for instance, in the towns bordering on the southern and southeasterly portions of the State, along the Ohio River, in situations as a general rule, but slightly elevated above high-water mark, or on the alluvial bottom lands of valleys, near large streams. Another strange fact commands attention. The mortality from zymotic diseases is least in those counties in which consumption is most prevalent. Of course in this statement, counties having large cities are not included. As a rule, the agricultural districts of Ohio, the Muskingum, Scioto, Miami and Maumee valleys are freest from consumption. The large and over-crowded cities of the State, the manufacturing districts of eastern and northeastern Ohio, the Lake shore counties east of the 83° of longitude, and Western Reserve, furnish the vast majority of deaths from phthisis. The believer in the antagonism of malaria and consumption will find strong proofs in support of such opinion, for it may be safely said in regard to Ohio, that the least mortality from phthisis, is in the most malarious districts.

We turn now to the consideration of the prevalent zymotic diseases in the State, during the Census year of 1860. The following table is compiled from the eighth census. For the sake of uniformity Farrs nomenclature has been adopted. The vital statistics of 1860 are faulty in one respect, i. e.: that the deaths by months are not given separately for each State. The States have been divided into groups; thus the mortality statistics of Ohio, Indiana, Illinois, Iowa and Kansas are embraced in one district. The total mortality from each disease in every State is given however, and it is from this latter source that our table has been compiled.

TABLE SHOWING DEATHS FROM THE VARIOUS FORMS OF ZYMOTICI IN OHIO. CENSUS, YEAR, 1860.

Diseases.	Deaths	Diseases.	Deaths	Diseases.	Deaths
Variola.	135.	Varicella.	——	Morbilli.	448.
Varioloides.	——	Miliaria.	——	Scarlatina.	3417.

Diseases.	Deaths	Diseases.	Deaths	Diseases.	Deaths
Tonsillitis.	29.	Febris Remittens.	413.	Pestis.	—
Diphtheria.	54.	" Icterodes.	—	Anthrax.	4.
Parotitis.	3.	" Continua.	—	Furunculus.	—
Cynanche Trachealis.	877.	Ophthalmia.	—	Influenza.	15.
Pertussis.	408.	Erysipelas.	198.	Dysenteria.	530.
Febris Typhoides.	1496.	Erythema.	—	Diarrhœa.	478.
" Recurrens.	—	Pyæmia.	—	Cholera Biliosa.	67.
" Typhus.	—	Metria.	71.	" Spasmodica.	—
" Intermitt.	199.	Gangræna Nosocomialis.	11.	" Infantum.	260.

The Census of 1870 is the most complete record of vital statistics so far published by the Government. From the Ninth Census has been compiled the following table:

TABLE SHOWING DEATHS FROM THE VARIOUS FORMS OF ZYMOTICI IN OHIO. CENSUS, YEAR, 1870.

Diseases.	Deaths	Diseases.	Deaths	Diseases.	Deaths
Variola.	332.	Febris Typhoides.	2003.	Gangræna Nosocomialis.	—
Varaloides.	—	" Recurrens.	—	Pestis.	—
Varicella.	—	" Typhus.	—	Anthrax.	8.
Miliaria.	—	" Intermitt.	248.	Furunculus.	—
Morbilli.	621.	" Remittens.	111.	Influenza.	5.
Scarlatina.	552.	" Icterodes.	2.	Dysenteria.	461.
Tonsillitis.	7.	" Continua.	—	Diarrhœa.	794.
Diphtheria.	474.	Ophthalmia.	—	Cholera Biliosa.	3.
Parotitis.	—	Erysipelas.	272.	" Spasmodica.	—
Cynanche Trachealis.	560.	Erythema.	—	" Infantum.	1109.
Pertussis.	574.	Pyæmia.	12.	Meningitis Spinalis.	74.
		Metria.	112.		

It may be partly claimed that these mortality statistics are under-estimates; notwithstanding this objection however, they are very valuable as affording an index to the prevalent zymotic diseases of the State. From a study of these two tables it is at once evident that Ohio, when compared with other States in the same latitude suffers to a less degree from zymotic causes, or rather its mortality from these causes is less in proportion to population.

We shall now consider the prevalence of the various forms of zymotici in the different sections of the State, as evidenced by Government reports. In the year 1865 reports were made by the "Examining Surgeons" of the State, to the "Provost Marshal General"* at Washington city. These reports contained an account of the topography and epidemiology of many of the Congressional Districts of Ohio. For the sake of convenience we shall divide the State into four sections, i. e.: northeastern, southeastern, northwestern, southwestern.

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* Medical Statistics of the Provost Marshal General's Bureau. By J. H. Baxter, M. D., Washington, 1875.

Northeastern Section includes the 14th, 17th, 18th, 19th "Congressional Districts." Dr. James D. Robinson, of Wooster, (14th District) states: "This district is composed of Holmes, Ashland, Wayne, Medina and Lorain counties. The southern portion is hilly, and in many portions the hills almost reach the dignity of mountains. Extensive beds of bituminous coal are found, and limestone and free sandstone crop out in various parts. It is well watered by springs and spring runs, and has several large streams running through it. These streams inundate the valleys through which they pass biennially or oftener, leaving a rich deposit of sandy loam. The soil on the hills is clay and sandy loam; very productive. The northern portion of the district is more level, although slightly rolling as it recedes from the lake. The soil is principally clay and a gravelly loam; the clay part scantily watered; the gravelly abundantly, and better adapted to grazing than raising grain.

"The diseases, as might be expected from the topography and locality of the district, are such as are induced by malaria and sudden climatic changes. Intermittent and remittent fevers, dysentery, and diarrhœa prevail in summer and autumn. Typho-malarial fever (pure typhoid fever being of rare occurrence), pneumonia, and rheumatism have the ascendancy in winter and spring months. In the neighborhood of large streams and small lakes, we frequently have dysentery and typho-malarial fever, endemic and malignant."

Dr. L. M. Whiting, of Alliance (17th District), states: "The 17th District embraces the counties of Carroll, Columbiana, Jefferson and Stark, and is largely made up of the rugged country which the projecting spurs of the Alleghany Mountains on their extreme western shape would naturally produce." The counties of Carroll, Columbiana and Jefferson are, with the exception of the northern part of the second named, very hilly. The northern part of Columbiana county is gently undulating, and watered by the Mahoning River. The western part of the district, composed almost entirely of Stark county, lies mainly beyond the immediate influence of the mountains, and is spread out into the most beautiful rolling landscape, through which flows the Tuscarawas river, and its tributaries, the Sandy and Minishillen, as also the Ohio Canal, along which are clustered many populous and busy towns. The district, taken as a whole, is decidedly a limestone region, in which bituminous coal of excellent quality everywhere abounds, and iron ore of superior yield is found in various localities. The portion of the district lying upon the Tuscarawas river and its tributaries is more or less subject to annual visitations of zymotic diseases; the form ordinarily assumed being periodic fever, but frequently presenting the typhoid character, in addition to the continued progression of morbid phenomena, denominated fever; the victims presenting the usual rose-colored spots, diarrhœa epistaxis, tympanitis, etc., which are adjudged pathognomonic of typhoid fever. The same remark holds good with reference to the land in the vicinity of Mahoning River flowing along the northeastern border of the district. In all other portions, diseases incident to a residence are only such as are common to the most healthy regions of the earth. *Diseases of the throat and lungs are common*, and more so than previous to the appearance, within a few years, of diphtheria, which has become more or less the terror of the district. No part of the district seems liable to epidemics; with the exception of two seasons of very limited epidemic dysentery, the appearance for a few days of epidemic cholera, and occasional visitations of scarlatina, no epidemic has been observed during a thirty years residence in any part of the district; and over a large part of it, intelligent physicians assure the writer that in an experience of over 40 years they have never known one."

Dr. H. C. Bradley, of Cleveland (18th District), relates: "The 18th District lies on the south shore of Lake Erie, and is composed of the counties of Lake, Summit and Cuyahoga. The counties of Lake and Cuyahoga border on the Lake. The county of Summit lies south of Cuyahoga. The district is traversed by three rivers, Grand River and Chagrin, which pass through Lake county, the latter touching some of the eastern townships of Cuyahoga, and the Cuyahoga River, which is the largest of the three, and traverses the county that bears its name. The rock formation of the district is a compact sandstone, a sandstone of somewhat coarser and more open texture, and, underlying these, a soft, clay slate which, when exposed to the air, is soon decomposed into a tenacious blue clay. The water in all the wells upon the ridges is found in coarse clear gravel, lying immediately over the clay, and is very good.

In the earlier history of the district, malarious diseases, as intermittent and remittent fevers were common, and in some localities quite prevalent. They have diminished in frequency and are not now common. Typhoid fever, scarlatina, dysentery, inflammation of the lungs, and rheumatism are among the most common diseases."

Dr. George W. Howe, of Warren (19th, District) states: "It is formed of the counties of Ashtabula, Trumbull, Mahoning, Portage and Geauga. The surface of the district is gently undulating. The north part of Ashtabula County, bordering on Lake Erie, has a sandy soil; the southern part, with most of Trumbull county, a rich loam with a clay subsoil; while Mahoning, Portage and Geauga counties are diversified with gravel, clay and loam. The whole district is comparatively healthy. Epidemics are seldom prevalent, though the air is moist and subject to severe and sudden changes, inducing pneumonia and *phthisis pulmonalis* in the northern portion, and bilious and typhoid fevers in other portions."

Southeastern Section, includes the 11th "Congressional District." Dr. O. C. Miller, of Portsmouth (11th District), states: "The district is composed of the Counties of Lawrence, Scioto, Jackson, Vinton, Adams and Gallia, and it is situated in that part of Ohio included in the great bend of the Ohio River southwardly and embraces the most southern point in the State. The district is almost entirely included in the arc of the semi-circle produced by the great bend of the river before mentioned, and has a river boundary on the south of one-hundred and sixty miles. The district embraces the great iron and coal belt as it passes through the State, and is especially known elsewhere as the "mineral region of the State of Ohio." In reference to the peculiar diseases to be found within our district, I have to say that there is no special peculiarity to merit notice. Along the tributaries of the Ohio River are to be met the various forms of autumnal or miasmatic fevers, dysentery and various other forms of bilious derangements, while our highlands have no well-marked peculiarity or form of diseases. Our people have to a considerable extent suffered from that complicated disorder known and spoken of in this region as "winter fever," which is pathologically a pleuro-pneumonia, with bilious complication and low grade of action. This form of disease is more dreaded than perhaps any other prevalent among us. Another fact in this connection of sufficient moment to merit notice is that the proportion of deaths from *phthisis pulmonalis* is larger in this portion of Ohio than any other locality with the statistics of which I am acquainted."

Northwestern Sections includes the 5th and 8th "Congressional Districts." Dr. S. C. Neff, of the Lima (5th District), states: "The Fifth Congressional District of Ohio is composed of the counties of Van Wert, Mercer, Auglaize, Allen, Hancock, Hardin and Wyandot. The surface of the country is generally level, and with the exception of Wyandot, is heavily timbered. The soil is generally a black loam. The prevailing diseases are malarious. Rheumatism and erysipelas also prevail to a considerable extent. As the result of numerous long and severe attacks of remittent and intermittent fevers, there are many cases of chronic hepititis splenitis, etc. It will also be seen from my final report that organic disease of the heart is very common. I have taken great pains to trace this disease to its origin, and find that very many cases are caused undoubtedly by erysipelas. This disease has prevailed in a portion of this district as an epidemic, especially in Hancock county."

Dr. T. B. Fisher, of Mansfield (8th District), states: "The Eighth District is composed of Richland, Morrow, Marion and Union counties. The country is level and fertile, including a portion of the valley of the upper Scioto and its tributaries and a small portion of the Sandusky and Darby plains. The prevailing diseases are of a bilious character, at least three fourths assume that type; but in winter and spring, typhoid fever and pneumonia are not unfrequent."

Southwestern Section, includes the 3rd, 4th, 6th and 7th Congressional Districts. Dr. W. L. Schenck, of Dayton (3d District), states: "The Third Congressional District is composed of the counties of Montgomery, Butler, Warren, and Preble. It is situated in the valleys of the Miami River. Its diseases are those incident to its alluvial soil and climatic changes, though the malarious fevers so common during the first settlement of the country are now comparatively rare, and are replaced by the atonic fevers which mark the age."

Dr. J. Fisler, of Urbana (4th District), states: "This District lies in the western part of the State, and consists of the counties of Champaign, Darke, Logan, Miami, and Shelby.

Champaign County is situated in the eastern part of the District. The surface is generally level, with some prairies, and the soil is exceedingly fertile. Darke county is situated in the western part of the district. The surface is generally level, with some prairie. Logan county is situated north of Champaign county. The surface is generally level though broken in some places; it is watered by the Miami River, and its tributaries. Miami county lies west, and southwest of Champaign county, and is watered by Miami River and its branches. On the east of the Miami the surface is rolling; on the west level. Shelby county is situated north of Miami county. The surface is varied; the southern undulating and somewhat hilly. The northern part, is a high, flat table land, and forms a part of the Lorain Summit, nearly four-hundred feet above Lake Erie.

It can hardly be said that we have any prevailing diseases in this district. Occasionally, in the fall, a few sporadic cases of autumnal fever, peculiar to the interior valley of the Mississippi, occur, but seldom in an epidemic form."

Dr. David Noble, of Hillsborough (6th District), states: "The district is composed of the counties of Highland, Brown, Clermont, Clinton and Fayette. The Ohio River bounds the counties of Clermont and Brown on the south. Highland, Clinton and Fayette counties are situated north of the aforesaid counties. The principal streams are the Little Miami, Paint, White Oak, and Bullskin. Highland county, as its name indicates, is very uneven and hilly, although it cannot be said to be mountainous. The soil is stony, with the lowlands (bottoms) bordering in the large streams, which are alluvial. Brown and Clermont counties may be included in what is said of Highland in relation to surface and soil. Fayette and Clinton counties are more level; the soil of the former being loamy, the latter clayey. Diseases — in this county (Fayette), intermittents are very prevalent during the fall months; the patients frequently continuing to have chills during the winter months; the cause evidently being miasm. The tertian and quartan type of the disease is the most prevalent during the winter months. Occasionally, cases of ague are found on the streams, although it yields very readily to treatment; however, in the early history of this disease—say twenty-five years ago, the inhabitants of the lowlands bordering on the large streams were subject to intermittent fever during the fall and winter months, and the diseases often proved fatal to the people residing near the Little Miami River. Typhoid fever is also very prevalent in this district, and is confined to no particular locality; it is not so fatal as it was twenty years ago. When it first made its appearance here, twenty per cent. of all those attacked died. Milk sickness prevails in several localities in Fayette and Clermont counties, though no satisfactory explanation of the cause has ever been given. It evidently results from some plant that is eaten by the milch-cows during the months of June, July and August; at other times the milk may be used with impunity. The type of all our fevers is asthenic. Remittent fever is not so frequent or fatal as it was twenty years ago. Diphtheria is now a very prevalent disease in this district. It first made its appearance in this county, and I might add district, ten years since. It is very fatal in some localities. We have all the varieties of scarlatina here; the malignant form prevailing to a greater extent in the vicinity of large streams of water. It is endemic in these localities, and often occurs sporadically. Remote from the water courses, it is not so fatal."

Dr. M. Lemen, of Columbus (7th District), states: "The Seventh District is composed of the counties of Franklin, Madison, Greene, and Clark. The surface of the county of Franklin is level and densely wooded; that of Madison and Clark counties partly rolling, and partly level, having considerable prairie land; while that of Green county is still more rolling and partly hilly. The district has running through it, besides their tributaries, the Scioto, Mad, Little Miami, and Darby Rivers. In former times, when the country was new, its inhabitants suffered from malarial and typhoid fever, especially along the bottom lands of the Scioto and Little Miami Rivers; but since drainage and cultivation have removed the thousand stagnant waters and boggy flats, this cause of disease has remarkably abated within the last fifteen or twenty years."

We now come to the consideration of the material, regarding the epidemiology of the State, derived from classes second and third. Class second, consists of the numerous contributions made to various medical periodicals, relative to special epidemics observed in different sections of Ohio during the past 75 years. The author has carefully collated and analyzed all the available material on this subject; no attempt has been made to quote these at length, as it would only serve to make an already lengthy essay too voluminous. The title, "Notes on the Epidemiology of Ohio," has been given to this article, for the reason that it includes only an epitome of a more elaborate paper, now in course of preparation, regarding the prevalent zymotic diseases of the Mississippi Valley. A few bibliographical references are included in our notes, regarding the epidemiology of Indiana. The notes on the epidemiology of Kentucky have been almost completed and will be published in a short time. The author is well aware, that many interesting papers may have been overlooked; it was impossible, for instance, to obtain full files of *The Clinic* and the "Transactions of the Ohio State Medical Society" which, no doubt, contain many valuable articles not here included. This matter will be fully remedied in a future publication.

In the arrangement of this material it will be noticed that Farr's nomenclature has as far as possible been adopted. The topography, climatology, and altitude of every town, where an epidemic has been observed, have been carefully studied. In proportion to the number of epidemics occurring in this State, from time to time, but very few have been reported. In stating the "season" of an outbreak, reference is only made to the time an epidemic made its first appearance. When the "spring" is mentioned, for instance, it does not follow that the disease may not have been prevalent during the season following. As regards the "type" of disease, the words *mild* and *severe* have been used. In those epidemics in which deaths are reported the word *severe* has been used, in contrary instances the word *mild*.

The following table gives the names of all physicians who have reported special epidemics; the bibliography has been made as full as practicable. These epidemics will be taken up *seriatim*, and a condensed statement given as to the seeming effects exercised by geology, hydrology, climatology, and altitude. The "Health Reports" of various towns in Ohio, including a summary of vital statistics, belonging to class 3rd, will also be noticed.

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* Diseases of the Interior Valley of North America—v. 2, p. 97.

HISTORICAL NOTES ON THE EPIDEMIOLOGY OF OHIO AND INDIANA.

Class.	*Order.*	*Disease.*	*Authority.*	*County.*	*Town.*	*Season.*	*Year.*	*Type.*	*Bibliographical Reference.*
1st. Zymotici.	1st. Miasmatici.	Febris remittens. variety: billious rem. fever.	P. Harrison.	Ross.	Chillicothe.	Fall.	1801	Severe.	N.Y. Med. Repository, 1807, p. 7.
			S. P. Hildreth.	Washington.	Bellpre.	Fall.	1807	Severe.	N.Y. Med. Repos., 808, p. 347.
			S. P. Hildreth.	Washington.	Marietta.	Summer.	1822	Severe.	Phil.Jour. Med.& Phys. Sciences, v. 9.
			J. C. Dunlavy.	Butler.	Hamilton.	Summer.	1824	Severe.	W.Med.& Phys.Jour. v.1, p.141. [p.108
			J. C. Bennett.	Pickaway.	Circleville.	Summer.	1828	Severe.	W. Jour. Med. & Phys. Sciences, v. 3,
			J. Dawson.	Greene.	Jamestown.	Fall.	1846	Severe.	Western Lancet, v. 6, p. 1. [p. 27.
			J. P. Harrison.	Hamilton.	Cincinnati.	Summer.	Annually.	Severe.	Western Lancet, v. 2, p. 201.
			* S. G. Mitchell.	Marion.	Indianapolis.	Summer.	1821	Severe.	W. Med. & Phys. Jour., v. 2, p. 443.
			* J. W. Fry.	Montgomery	Crawfordsville.	Summer.	1845	Severe.	W. Jour. of Med. & Surg., v. 6, p. 74.
		Febris intermittens, or interm. fever.	† T. Carroll.	———	———	All.	1821-2-3	Severe.	Western Lancet, v. 18, p. 22.
			J. Dawson.	Greene.	Jamestown.	All.	1847	Severe.	Western Lancet, v. 10, p. 69.
			E. B. Stevens.	Hamilton.	Cincinnati.	All.	1855	Mild.	Cin. Med. Observer, v. 1, p. 11.
		Febris typhoides, or typhoid fever	D. Drake.	Hamilton.	Cincinnati.	Winter.	1809	Severe.	"Dis. Interior Valley N. America," v.
			S. P. Hildreth.	Washington.	Marietta.	Winter.	1812	Severe.	Ib., quoted by Drake. [2, p. 365.
			T. Carroll.	Hamilton.	Walnut Hills.	Fall.	1842	Severe.	W. Jour. Med. & Surg., v. 8, p. 321.
			J. Dawson.	Greene.	Jamestown.	Fall.	1844	Severe.	W. Jour. Med. & Surg., v. 2, p. 185.
			H. West.	Belmont.	St. Clairsville.	Fall.	1851	Mild.	Trans. Amer. Med. Ass., v. 7, p. 352.
			E. Mendenhall.	Preble.	Eaton.	Fall.	1864	Mild.	Cin. Lancet & Observer, v. 8, p. 201.
			T. G. Pearce.	Champaign.	Mechanicsburg	Fall.	1864	Severe.	Cin. Lancet & Observer, v. 8, p. 265.
		Dengue, or breakbone fever.	J. Dawson.	Greene.	Jamestown.	———	1841	Mild.	Western Lancet, v. 2, p. 15.
			A. B. Price.	Montgomery	Centreville.	Spring.	1842	Mild.	W. Jour. Med. & Surg., v. 5, p. 397.
			L. M. Lawson.	Hamilton.	Cincinnati.	Fall.	1850	Mild.	Western Lancet, v. 12, p. 132.

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* Indiana Epidemics. † Prevalent throughout the State of Ohio.

HISTORICAL NOTES ON THE EPIDEMIOLOGY OF OHIO AND INDIANA.—Continued.

Class.	*Order.*	*Disease.*	*Authority.*	*County.*	*Town.*	*Season.*	*Year.*	*Type.*	*Bibliographical Reference.*
1st. Zymotici.	1st. Miasmatici.	Ergo deleteria, milk sickness or, trembles.	† D. Drake.	——	——	Summer.	1809	Severe.	W. Jour. Med. & Surg., v. 3, p. 163.
			S. C. Chase.	Wyandot.	Wyandot.	Summer.	1841–2	Severe.	Cin. Lancet & Observer, v. 4, p. 348.
			J. F. Hibberd.	Miami.	Covington.	Summer.	1842	Severe.	Western Lancet, v. 3, p. 455.
			G. V. Dorsey.	Miami.	Piqua.	Summer.	1842–3	Severe.	Western Lancet, v. 6, p. 76.
			J. N. Carter.	Shelby.	Jackson Centre.	Summer.	1874	Severe.	Cin. Medical News, v. 5, p. 514.
			* J. Horne.	Henry.	Middletown.	Summer.	1843	Severe.	Western Lancet, v. 2, p. 451.
			* F. H. Sale.	Dearborn.	Dillsboro.	Fall.	1870	Severe.	Cin. Lancet & Observer, v. 14, p. 404.
		Feb. icterodes, or yellow fever.	J. A. Ellicott.	Gallia.	Gallipolis.	Fall.	1796	Severe.	N. Y. Med. Repository, v. 4, p. 74.
		Cerebro spinal, or spotted fever.	J. R. Black.	Licking.	Newark.	Winter.	1863–4	Severe.	Am. Jour. Med. Science, 1865, p. 345.
			S. Hudson.	Medina.	Medina.	Winter.	1863–4	Severe.	Cin. Med. News, v. 2, p. 374.
			I. Kay.	Clark.	Springfield.	Spring.	1864	Severe.	Trans. Ohio State Med. Soc., 1868, p. 145.
			S. S. Scoville.	Warren.	Lebanon.	Spring.	1864	Severe.	Trans. O. State Med. Soc., 1868.
			J. L. Mount.	Warren.	Morrow.	Spring.	1866	Severe.	Cin. Jour. of Medicine, 1866, p. 346.
			J. C. Reeve.	Montgomery.	Dayton.	Spring.	1871	Severe.	The Clinic, v. 3, p. 1.
			T. L. Wright.	Logan.	Bellefontaine.	Spring.	1872	Severe.	Cin. Lancet & Observer, v. 15, p. 427.
			T. C. Minor.	Hamilton.	Cincinnati.	Spring.	1872–3	Severe.	Cin. Lancet & Observer, v. 16, p. 705.
			* M. Kempf.	Dubois.	Farmont.	Winter.	1862	Severe.	Am. Jour. Med. Sciences, 1866, p. 55.
			* J. J Rooker.	Marion.	Castleton.	Spring.	1862–4	Severe.	Cin. Lancet & Observer, v. 7, p. 517.
			* W. S. Haymond.	White.	Monticello.	Spring.	1864–72	Severe.	Cin. Lancet & Observer, v. 15, p. 641.
			* W. T. Cleland.	Fulton.	Kewana.	Spring.	1865	Severe.	Cin. Lancet & Observer, v. 8, p. 535.
		Cynanche trachealis, or croup.	H. G. Cary.	Montgomery	Dayton.	Spring.	1816	Severe.	Trans. Am. Med. Ass., v. 7, p. 315.
			I. Kay.	Preble.	Lewisburg.	Fall.	1850	Severe.	Ohio Med. & Surg. Jour., v. 4, p. 116.

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* Indiana Epipemics. † Drake refers to Epidemics in Fayette, Clark, Madison and Green Counties; also to the earliest Epidemics noticed on the Great Miami River, in 1809.

HISTORICAL NOTES ON THE EPIDEMIOLOGY OF OHIO AND INDIANA.—Continued.

Class.	Order.	Disease.	Authority.	County.	Town.	Season.	Year.	Type.	Bibliographical Reference.
1st. Zymotici.	1st. Miasmatici.	Scarlatina, or scarlet fever.	D. Drake.	Hamilton.	Cincinnati.	——	1793-1808	Severe.	"Dis. Int. Valley N. Am." v. 2, p. 594.
			S. P. Hildreth.	Washington.	Marietta.	Fall.	1824	Mild.	W. Med. & Phys. Jour., v. 1, p. 502.
			S. Reed.	Portage.	——	Winter.	1830	Mild.	W.Jour.Med.& Phys.Science, v.7, p.14.
			H. G. Cary.	Montgomery.	Dayton.	Spring.	1831–49	Severe.	Trans. Amer. Med. Ass., v. 7, p. 317—
			T. Carroll.	Belmont.	St. Clairsville.	Spring.	1831	Severe.	W. Jour. Med. & Surg., v. 5, p. 328.
			J. P. Judkins.	Jefferson.	Steubenville.	Winter.	1831–2	Mild.	W.Jour.Med.& Phys.Science, v 6, p 494
			G. E. Conant.	Portage.	Windham.	Fall.	1832	Severe.	W.Jour.Med.& Phys. Science, v 7, p 23.
			J. Dawson.	Greene.	Jamestown.	All.	1838	Mild.	Western Lancet, v. 2, p. 15.
			D. Potter.	Fairfield.	——	——	1839	Mild.	Trans. O. State Med. Soc., 1855, p. 100.
			R. R. McMeens.	Erie.	Sandusky.	——	1841	——	Trans. O. State Med. Soc., 1857, p. 159.
			G. K. Pardee.	Medina.	Wadsworth.	Fall.	1846	Severe.	Western Lancet, v. 6, p. 18.
			W. Hendron.	Delaware.	——	Spring.	1848	Severe.	Ohio Med. & Surg. Jour., v. 1, p. 503.
			J. Dawson.	Greene.	Jamestown.	Fall.	1848	Mild.	W. Jour. Med. & Surg., v. 3, p. 478.
			G. W. Boerstler.	Fairfield.	Lancaster.	Fall.	1848	Severe.	Ohio Med. & Surg. Jour., v. 1. p. 318.
			E. Williams.	Belmont.	Barnsville.	Spring.	1851	Mild.	Trans. Am. Med. Ass., 1854, p. 353.
			C. Cochran.	Erie.	Sandusky.	Winter.	1851–2	Mild.	Cin. Lancet & Observer, v. 7, p. 578.
			C. B. Hughes.	Hamilton.	Cincinnati.	All.	1853	Mild.	Trans. Am. Med. Ass., v. 7, p. 299.
			H. G. Cary.	Montgomery	Dayton.	Winter.	1854	Severe.	Western Lancet, v. 15, p. 363.
			B. F. Goode.	Hamilton.	Cincinnati.	Fall.	1863	Severe.	Cin. Lancet & Observer, v. 7, p. 30.
			T. C. Minor.	Hamilton.	Cincinnati.	Fall.	1873–4	Severe.	Cin. Lancet & Observer, v. 18.
			J. W. Underhill.	Hamilton.	Cincinnati.	Fall.	1873–4	Severe.	Cin. Med. News, v. 3, p. 243.
			S. R. Vorhees.	Warren.	Mason.	Fall.	1874	Severe.	Cin. Lancet & Observer, v. 19, p. 1067.
			H. W. Kitchen.	Cuyahoga.	Cleveland.	Winter.	1874	Mild.	Minor's "Scarlatina Statistics," p. 35.
			J. J. Quinn.	Hamilton.	Cincinnati.	All.	1874–5	Severe.	Cin. Lancet & Observer, v. 18, p. 77.
			* G. Sutton.	Dearborn.	Aurora.	Spring.	1848	Mild.	N. Amer. Chirurgical Review, v. 1, p. 902.
			* T. Hutchinson.	Morgan.	Mooresville.	Summer.	1852–3	Severe.	Cin. Lan. & Obser., v. 1, p. 593.
			* J. Cass.	Vanderburg.	Evansville.	Fall.	1857	Mild.	Cin. Lancet & Observer, v. 1, p. 89.
		Varicella, or chicken pox.	T. Carroll.	Hamilton.	Cincinnati.	Winter.	1845	Severe.	W. Jour. Med. Sciences, v. 8, p. 99.

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* Indiana Epidemics.

HISTORICAL NOTES ON THE EPIDEMIOLOGY OF OHIO AND INDIANA.—Continued.

Class.	Order.	Disease.	Authority.	County.	Town.	Season.	Year.	Type.	Bibliographical Reference.
1st. Zymotici.	1st. Miasmatici.	Influenza, or epidemic catarrh.	D. Drake.	Hamilton.	Cincinnati.	Fall.	1807	Mild.	" Dis. Int. Valley N. America," v. 2, p. [809.
			S. C. Forsythe.	Belmont.	Wheeling.	Spring.	1807	Mild.	N. Y. Med. Repos., 1809, p. 356.
			S. P. Hildreth.	Washington.	Marietta.	—	1808	Mild.	N. Y. Med. Repository, 1809, p. 358.
			D. Drake.	Hamilton.	Cincinnati.	Fall.	1831	Mild.	W. Jour. Med. & Phys. Science, v 6, p 45.
			R. R. McMeens.	Erie.	Sandusky.	—	1831	Mild.	Trans. O. State Med. Soc., 1857, p. 159.
			J. P. Harrison.	Hamilton.	Cincinnati.	—	1832	Mild.	Western Lancet, v. 9, p. 71.
			H. G. Cary.	Montgomery.	Dayton.	Spring.	1833	Mild.	Trans. Am. Med. Ass., v. 7, p. 307.
			L. M. Lawson.	Hamilton.	Cincinnati.	Summer.	1843	Mild.	Western Lancet, v. 2, p. 151.
			J. L. Taylor.	Scioto.	Wheelersburg.	Winter.	1874–5	Mild.	The Clinic, v. 7, p. 290.
		Variola, or, small pox.	H. G. Cary.	Montgomery.	Dayton.	Winter.	1854	Severe.	Western Lancet, v. 15, p. 358.
			E. H. Ferris.	Hamilton.	Cincinnati.	Fall.	1857	Mild.	Cin. Lancet & Observer, v. 1, p. 267.
			J. P. Walker.	Hamilton.	Cincinnati.	Winter.	1868-9-70	Severe.	Cin. Med. Repository, v. 4, p. 245.
		Erysipelas.	J. Passamore.	Preble.	Eaton.	Fall.	1835	Severe.	W. Jour. Med. & Phys. Sciences, v. 8.
			† H. G. Cary.	Montgomery.	Dayton.	Fall.	1843	Severe.	Trans. Am. Med. Ass., v. 7, p. 318.
			L. M. Lawson.	Hamilton.	Delhi.	Spring.	1844	Severe.	Western Lancet, v. 2, p. 536.
			† J. Dawson.	Greene.	Jamestown.	Winter.	1844	Severe.	W. Jour. Med. & Surg., v. 4, p. 98.
			† J. H. Brown.	Monroe.	—	Fall.	1845	Severe.	Ohio Med. & Surg. Jour., v. 1, p. 319.
			T. M. Tweed.	Crawford.	West Liberty.	Winter.	1848	Severe.	Ohio Med. & Surg. Jour., v. I, p. 303.
			† B. Stanton.	Columbiana.	Salem.	Spring.	1851	—	Western Lancet, v. 13, p. 509.
			M. T. Cary.	Shelby.	Sidney.	Winter.	1851–2	Severe.	Trans. Am. Med. Ass., v. 7, p. 344.
			† J. C. Reeve.	Montgomery.	Dayton.	Winter.	1860	Mild.	Cin. Lancet & Observer, v. 8, p. 91.
			† T. C. Minor.	Hamilton.	Cincinnati.	Winter.	1872–3	Mild.	Cin. Lancet & Observer, v. 17, p. 129.
			* G. Sutton.	Dearborn.	Aurora.	Fall.	1842	Severe.	† Western Lancet, v. 6, p. 308.
			* G. L. Andrews.	La Porte.	Michigan City.	Winter.	1843–4	Severe.	† Western Lancet, v. 7, p. 148.
			* J. N. Green.	Hendricks.	Stitesville.	Winter.	1850–1	Mild.	† Western Lancet, v. 16, p. 712.

* Indiana Epidemics. † Epidemics of 1843-4-5, 1860, 1872; Puerperal Fever Epidemics observed at the same time.

HISTORICAL NOTES ON THE EPIDEMIOLOGY OF OHIO AND INDIANA.—Continued.

Class.	*Order.*	*Disease.*	*Authority.*	*County.*	*Town.*	*Season.*	*Year.*	*Type.*	*Bibliographical Reference.*
1st. Zymotici.	1st. Miasmatici.	Diphtheria.	§ J. Dawson.	Greene.	Jamestown.	Winter.	1841-2-3	Severe.	W. Jour. Med. & Surg., v. 3, p. 93.
			D. Welsh.	Morgan. Monroe. Guernsey.	———	Spring.	1847	Severe.	Ohio Med. & Surg. Jour., v. 2, p. 385.
			W. C. McBride.	Highland.	Marshall.	Summer.	1851	Severe.	Western Lancet, v. 13, p. 662.
			R. R. McMeens.	Erie.	Sandusky.	Fall.	1855	Severe.	Western Lancet, v. 17, p. 1.
			W. W. Shepherd.	Highland.	Samantha.	———	1857	Severe.	Ohio Med. & Surg. Jour., v. 10. p. 136.
			T. A. Reamy.	Muskingum.	Hopewell.	Summer.	1858	Mild.	Cin. Med. & Surg. News, v. 1, p. 324.
			A. McBride.	Cuyahoga.	Berea.	Winter.	1858-9	Severe.	Cin. Lancet & Observer, v. 5, p. 15.
			J. Meranda.	Clark.	New Carlisle.	Winter.	1859	Mild.	Cin. Lancet & Observer, v. 3, p. 146.
			W. H. McReynolds.	Hamilton.	Cincinnati.	Winter.	1859	Severe.	Cin. Lancet & Observer, v. 2, p. 265.
			J. S. Taylor.	Montgomery	———	Fall.	1859	Severe.	Cin. Lancet & Observer, v. 3, p. 91.
			C. G. Comegys.	Hamilton.	Cincinnati.	Winter.	1859	Severe.	Cin. Lancet & Observer, v. 3, p. 22.
			J. M. Beach.	Madison.	West Jefferson.	Summer.	1860	Severe.	Ohio Med. & Surg. Jour., v. 13, p. 100.
			J. W. Smith.	Lorain.	Wellington.	Winter.	1860	Severe.	Cin. Lancet & Observer, v. 4, p. 19.
			W. Griswold.	Pickaway.	Circleville.	———	1860	Severe.	W. Jour. of Medicine, v. 4, p. 117.
			W. H. Matcheet.	Darke.	Ithaca.	Spring.	1860	Severe.	Cin. Med. & Surg. News, v. 2, p. 6.
			E. S. Plimpton.	Lake.	Madison.	Spring.	1861	Severe.	Ohio Med. & Surg. Jour., v. 13, p. 467.
			S. S. Scoville.	Miami.	Bethel.	Winter.	1861	Mild.	Ohio Med. & Surg. Jour., v. 13, p. 370.
			W. H. Haynes.	Butler.	———	Winter.	1864	Severe.	Cin. Lancet & Observer, v. 11, p. 659.
			* V. Kersey.	Wayne.	Milton.	Winter.	1858-9	Severe.	Cin. Lancet & Observer, v. 3, p. 280.
			* J. Rea.	Henry.	New Castle.	All.	1859	Severe.	Cin. Lancet & Observer, v. 3, p. 95.
			* J. Lewis.	Henry.	Ogden.	Fall.	1860	Mild.	Cin. Lancet & Observer, v. 4, p. 201.
			* E. A. Glezen.	Dubois.	Ireland.	Winter.	1860	Mild.	Cin. Med. & Surg. News, v. 1, p. 369.
			* N. H. Canaday.	Henry.	Knightstown.	Winter.	1860	Mild.	Cin. Lancet & Observer, v. 4, p. 207.
			* J. A. Eastman.	Hendricks.	———	Winter.	1871	Severe.	Indiana Jour. of Med., v. 3, p. 231.
			* C. B. Johnson.	Wabash.	Tolona.	Fall.	1874	Severe.	American Practitioner, 1875, p. 73.
		Ophthalmia.	S. P. Hildreth.	Washington.	Bellpre.	———	1807	———	N. Y. Med. Repository, v. 5, p. 346.
			T. Carroll.	Hamilton.	Cincinnati.	Fall.	1842-3	Mild.	Western Lancet, v. 3, p. 209.

* Indiana Epidemics. § Noticed in County 30 Years before.

HISTORICAL NOTES ON THE EPIDEMIOLOGY OF OHIO AND INDIANA.—Continued.

Class.	Order.	Disease.	Authority.	County.	Town.	Season.	Year.	Type.	Bibliographical Reference.
1st. Zymotici.	1st. Miasmatici.	Morbilli, or measles.	D. Drake.	Hamilton.	Cincinnati.	Winter.	1803-1813	Severe.	"Dis. Int. Valley N. Am., v. 2, p. 593.
			S. P. Hildreth.	Washington.	Marietta.	Spring.	1824	Severe.	W. Med. & Phys. Jour., v. 1, p. 497.
			D. Drake.	Hamilton.	Cincinnati.	Winter.	1832	Severe.	W. Jour. Med. & Phys. Sciences, v. 6,
			J. Dawson.	Greene.	Jamestown.	———	1840	———	Western Lancet, v. 2, p. 15. [p. 48.
			G. S. Sams.	Highland.	Hillsboro.	Winter.	1852	Severe.	Trans. Am. Med. Ass., v. 7, p. 345.
			H. G. Cary.	Montgomery.	Dayton.	Winter.	1854	Severe.	Western Lancet, v. 15, p. 366.
		Pertussis, or, hooping cough.	J. Dawson.	Greene.	Jamestown.	———	1839	———	Western Lancet, v. 2, p. 15.
		Cholera biliosa, and Cholera spasmodica.	J. F. Henry.	Hamilton.	Cincinnati.	Fall.	1832	Severe.	Transylvania Med. Jour., v. 5, p. 507.
			D. Drake.	Hamilton.	Cincinnati.	Fall.	1832	Severe.	W. Jour. Med. & Phys. Sciences, v. 6,
			L. M. Lawson.	Hamilton.	Cincinnati.	Fall.	1832	Severe.	West. Lancet, v. 8, p. 256. [p. 332.
			B. Stanton.	Columbiana.	Salem.	———	1832–3	Severe.	Western Lancet, v. 13, p. 509.
			M. W. Awl.	Franklin.	Columbus.	Summer.	1833	Severe.	W. Jour. Med. & Phys. Science, v 7, p 34.
			D. Drake.	Hamilton.	Cincinnati.	Summer.	1834	Severe.	W. Jour. Med. & Phys. Sciences, v. 8, p.
			H. G. Cary.	Montgomery.	Dayton.	———	1832–49	Severe.	Trans. Am. Med. Ass., v. 7, p. 309. [169.
			G. Sprague.	Seneca.	Tiffin.	Summer.	1834–49	Severe.	Western Lancet, v. 13, p. 23.
			J. P. Harrison.	Hamilton.	Cincinnati.	Winter.	1848	Severe.	Western Lancet, v. 9, p. 68.
			L. M. Lawson.	Hamilton.	Cincinnati.	Winter.	1849	Severe.	Western Lancet, v. 9, p. 67.
			G. Mendenhall.	Hamilton.	Cincinnati.	Winter.	1848–9	Severe.	Trans. Amer. Med. Ass., v. 4, p. 181.
			C. Cochran.	Erie.	Sandusky.	Summer.	1849	Severe.	Western Lancet, v. 18, p. 852.
			S. H. Smith.	Franklin.	Columbus.	Summer.	1849	Severe.	Ohio Med. & Surg. Jour., v. 2, p. 81.
			† T. Carroll.	Hamilton.	Cincinnati.	All.	1849–50	Severe.	Western Lancet, v. 15, p. 321.
			W. W. Dawson.	Greene.	Yellow Springs.	Summer.	1851	Severe.	Western Lancet, v. 12, p. 716.
			M. T. Cary.	Shelby.	Sidney.	Fall.	1852	Severe.	Trans. Amer. Med. Ass., v. 7, p. 314.
			J. M. Moe.	Putnam.	Gilboa.	Fall.	1852	Severe.	Trans. Amer. Med. Ass., v. 7, p. 349.
			T. W. Gordon.	Brown.	Georgetown.	Summer.	1852	Severe.	Ohio Med. & Surg. Jour., v. 5, p. 371.
			J. A. Coons.	Montgomery.	Dayton.	Summer.	1854	Severe.	Western Lancet, v. 15. p. 525.
			R. Bartholow.	Hamilton.	Cincinnati.	Summer.	1866	Severe.	Cin. Lancet and Observer, v. 9, p. 652.
			§ J. J. Quinn.	Hamilton.	Cincinnati.	Summer.	1873	Severe.	Quinn's "Cholera in Cin'ti in 1873."

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† Carroll estimates the Deaths during this Epidemic at 6000, or, 1 to every 16 of total population. § This Epidemic was not imported from Europe.

HISTORICAL NOTES ON THE EPIDEMIOLOGY OF OHIO AND INDIANA.—Concluded.

Class.	Order.	Diseases.	Authority.	County.	Town.	Season.	Year.	Type.	Bibliographical Reference.
1st. Zymotici.	1st. Miasmatici.	Dysenteria, or flux.	B. Stanton.	Columbiana.	Salem.	Summer.	1822–1851	Mild.	Western Lancet, v. 13, p. 509.
			R. R. McMeens.	Erie.	Sandusky.	Summer.	1823	———	Trans. O. State Med. Soc., 1857, p. 159.
			G. Bailey.	Hamilton.	Cumminsville.	Spring.	1834	Mild.	W. Jour. Med. & Phys. Sciences, v. 8.
			D. Drake.	Hamilton.	Cincinnati.	Summer.	1834	Mild.	W. Jour. Med. & Phys. Sciences, v. 8.
			G. V. Dorsey.	Miami.	Piqua.	Summer.	1835	Severe.	Western Lancet, v. 2, p. 378.
			J. A. Murphy.	Hamilton.	Cincinnati.	Summer.	1849–50	Severe.	Western Lancet, v. 12, p. 69.
			C. W. Prather.	Butler.	Venice.	Summer.	1849–50	Severe.	Western Lancet, v. 13, p. 227.
			J. A. Coons.	Montgomery.	———	Fall.	1849–52	Severe.	Western Lancet, v. 15, p. 195.
			J. W. Tullis.	Miami.	Troy.	Summer.	1850	Severe.	Western Lancet, v. 12, p. 310.
			G. V. Dorsey.	Miami.	Piqua.	Summer.	1850	Mild.	Western Lancet, v. 13, p. 602.
			S. P. Hildreth.	Washington.	Marietta.	Summer.	1851	Severe.	Western Lancet, v. 13, p. 13.
			T. W. Gordon.	Brown.	Georgetown.	Spring.	1851	Mild.	Ohio Med. & Surg. Jour., v. 5, p. 208.
			J. N. Salsbury.	Brown.	Russleville.	Summer.	1851	Mild.	Western Lancet, v. 13, p. 855.
			H. G. Cary.	Montgomery.	Dayton.	Fall.	1851	Mild.	Trans. Am. Med. Ass., v. 7, p. 323.
			M. T. Cary.	Shelby.	Sidney.	Summer.	1851	Severe.	Trans. Am. Med. Ass., v. 7, p. 344.
			E. Williams.	Belmont.	Bornsville.	Summer.	1851	Severe.	Trans. Am. Med. Ass., v. 7, p. 353.
			D. A. Hoffmann.	Jackson.	Jackson, C. H.	Summer.	1851	———	Ohio Med. & Surg. Jour., v. 4, p. 383.
			S. C. Roberts.	Ross.	Bainbridge.	Summer.	1852	Severe.	Western Lancet, v. 14, p. 597.
			C. S. Sams.	Highland.	Hillsboro.	Summer.	1852	Severe.	Trans. Am. Med. Ass., v. 7, p. 345.
			S. S. Scoville.	Warren.	Lebanon.	Summer.	1869	Severe.	Cin. Lancet & Observer, v. 12, p. 742.
			* H. P. Ayres.	Allen.	Ft. Wayne.	———	1845	Severe.	N. Amer. Medico-Chirurgical Review, v. 4, p. 849.
			* J. Casselbury.	Vanderburg.	Evansville.	Summer.	1848	Mild.	W. Lancet, v. 8, p. 145.
			* W. Dickey.	Wayne.	Dalton.	Summer.	1851	Mild.	Western Lancet, v. 13, p. 526.
		Diarrhœa.	W. Carson.	Hamilton.	Cincinnati.	Winter.	1863–4	Mild.	Cin. Lancet & Observer, v. 7, p. 235.
			J. J. Quinn.	Hamilton.	Cincinnati.	Winter.	1874	Severe.	Cin. Lancet & Observer, v. 18, p. 24.

Remittent Fever.—Dr. Daniel Drake* speaking of the remittent fever of this latitude, remarks: "It is properly called autumnal fever, because it prevails most in that season, and is an equivalent for the remittent fever of the warmer climates. Formerly it often abated into intermittent; latterly, it is apt to degenerate into a continued type." Drake mentions the fact that it "prevails at the same time and at the same places," with intermittent fevers. Maclean, † of England, has also arrived at the same conclusion for he stated that "Remittent fever has been observed where-ever malaria is generated in sufficient concentration both in hot and temperate climates, but it is most prevalent and fatal where high temperature and malaria act in combination." The malignant form of remittent has occasionally shown itself in Ohio as an epidemic after an unusually hot and rainy season, and the type of disease at such periods will be found to fully agree with that described by the English observer. Wood,* whojustly remarks, in speaking of the form of disease observable in America: "It is rare in mountains and hilly districts, except where there are large streams or standing water; also in dry sandy regions. The situation in which the disease is prevalent are the valleys of streams, the borders of lakes or ponds, the neighborhood of marshes, and the rich prairies of our Western States."

Drake was right in his assertion regarding autumnal fevers, i. e.: "Being an endemic of all hot climates we need not look to the southern shores of the Gulf of Mexico for a southern limit to our autumnal fever. Its base is, in fact, within the tropics; and prevailing, of course, in Havana and at Vera Cruz, it is found where-ever there are inhabitants, on the northern coasts of the Gulf between these two cities. In every other direction than the south, this endemic has its geographical limits. To the last, its barrier is the Appalachian Mountains, into the very gorges of which, however, it ascends by the valleys which penetrate their flanks. But as that chain is not found south of the thirty-third degree of latitude, it has, below that parallel, no eastern limit but the Atlantic Ocean. To the southwest the Cordilleras of Mexico, and the Southern Rocky Mountains, constitute its boundaries; while, in higher latitudes, it ceases on the great plain of our western desert, long before we reach those mountains. It is almost unknown at the distance of three-hundred miles from the western boundary of the state of Missouri and Iowa, and above the latitude of 37° north. To the north it does not prevail as an epidemic beyond the 44th parallel, and ceases to occur even sporadically about the 47th."

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† Reynold's System of Medicine—v. 1, p. 609.

* Wood's Practice of Medicine—v. 1, p. 277.

Dr. Edward Jarvis, of Dorchester, Massachusetts, the compiler of the mortality statistics of the seventh and eighth census, states: "Remittent fever in 1850 was reported to be fatal to 148 persons, but in 1860 it carried off 11,120, or 3.12 per cent. of all who died. The north, and middle eastern States were comparatively exempt from it. It prevailed more at the west than in the same latitudes east, and more at the south than at the north. Its destructiveness in the southeast was thrice as great as in the northeast. It was twice as great in the northwest as in the northeast, and twice as great in the southwest and in the Pacific States as in the northwest."

Jarvis remarks, of intermittent fever, another form of autumnal fever, that, "it is hardly known in New England, and not much in New York, New Jersey, Pennsylvania, Maryland, Virginia, and North Carolina, the deaths varying in these States from one-tenth to one-half of one per cent." The Census returns of 1870, show almost a similar geographical distribution of the disease.

The Valleys of Ohio, since the earliest settlement of the State, have been occasionally visited by the disease in its epidemic form. As early as 1796, it devastated the French settlement of Gallipolis, on the Ohio River. Later, 1801, it was very fatal at Chillicothe, in the Scioto Valley. In 1821, the city of Indianapolis, Indiana, was almost depopulated by it. In 1822 some of the towns situated on the shores of the Ohio River suffered severely from a like epidemic. In 1824, it appeared in the Miami Valley in an exceedingly malignant form. In 1828, some of the central interior counties of the State were visited by an epidemic of the disease. It is a notable fact, that the only records we have of the epidemic manifestations of the malady, come from the valley lands of the State. The lowlands of the Hocking, Muskingum, Scioto, Miami and Maumee Valleys seem to have afforded the most congenial points for epidemic outbreaks. Of late years the cultivation of the soil and artificial drainage have diminished the tendency to this disease in a marked degree; nevertheless it still prevails sporadically to a considerable extent in the neighborhood of the larger streams and bottom lands of the various valleys, the Hocking and Muskingum suffering much less than the other lowlands named.

Geographical Distribution. — Although the disease occurs occasionally in northeastern and eastern Ohio, it is comparatively rare in that section of country. Lake, Summit, Geauga, Portage, Trumbull, Ashtabula, Mahoning, Cuyahoga, Jefferson, Carroll, Columbiana, Belmont, Monroe, Washington, and Harrison counties, enjoy a comparative exemption from both remittent and intermittent fevers. The diseases rarely make their appearance, even sporadically in these counties, except in the immediate neighborhood of the larger streams, as for instance, the Ohio, Minishillen, Sandy and Tuscarawas Rivers. In the central and western counties of the State the disease is endemic.

Effects of Altitude, Temperature, and Geological Formation.—Altitude is one of the strongest elements opposed to the development of this form of zymotic fever. The elevated counties, even in the interior of the State, suffer to a much less degree than the lowland counties. A high summer temperature, following a prolonged rainy season, appears to favorize the development of the disease in all instances. The portions of the State overlying the Carboniferous System are the freest from malarial influences. Those counties overlying the Devonian System and those overlying the Silurian System seem to be peculiarly susceptible to malarial influences.

Prophylaxis.—The vast majority of medical writers in the State co-incide in agreeing that drainage, the thinning out of dense woodlands, and river improvements, have been the chief causes of the subsidence of the malarial tendency in Ohio. Ponds and boggy lands have been drained of their surplus water; underbrush in swampy localities has been thinned out, affording a freer ingress for the sunlight and warm air, thus favorizing rapid evaporation; dams, for the utilization of water power, have been built on shallow, sluggish and stagnant streams; and in some instances, long canals, constructed at the lowest possible level, have served admirably the purpose of surface drainage. These improvements have not been prompted, in most instances, by any sanitary knowledge, or any desire to benefit the public health, but from entirely selfish motives. A notable exception to this remark, may be noticed however, *en passant.* Chillicothe, for many years past, had been subject to annual visitation of malarial fever. The cause of their visitations was directly traceable to the malaria arising from the swampy bottoms of Paint Creek. Within a year, or two, these bottoms have been filled in, elevated, and converted into a handsome park. This valuable piece of sanitary engineering has been followed by the happiest possible results, and Chillicothe, once the largest local market for quinine of any town of its size in the State, is said to have secured a comparative immunity from the intermittents and remittents with which it was once afflicted.

Change in the Type of Disease.—For the last thirty-five years a gradual change in the type of zymotic fevers, having a malarial origin, has been noticed and spoken of by the physicians of the State, a form of fever which is greatly masked, owing to a blending of typhoid and malarial symptoms. This hybrid was long since recognized by Drake, who termed it "Remitto-Typhous" (Ib. v. 2, p. 557). More recently Dr. J. J. Woodward, of Washington City, has given it the name of Typho-malarial fever, a term which has also been adopted by Dr. Austin Flint, of New York. This form of zymotic fever is frequently observed, sometimes even in eastern and southeastern Ohio, and is recognized by physicians, as a special type of disease, the older physician calling it remittent typhous, and the younger physicians typho-malarial fever. In this city (Cincinnati) it has been quite common for the past twenty-five years. Here, latterly, it is designated, in many instances, as typhoid fever, and the fact that quinine is freely administered in large doses in a disease supposed to be self-limited, with *remarkably* favorable results, is proof positive that a strong malarial element exists in these *so-called* typhoid cases. This species of typhoid is usually cured in 10 or 12 days, and adds greatly to the business of certain medical men who might, otherwise, be regarded as acute diagnosticians.

Statistics of Remittent Fever.—The only Boards of Health in the State whose registration of vital statistics extends back for a period of ten years, are situated west of the 83° of longitude. Northwestern Ohio, is represented by Toledo; central-western Ohio, by Dayton; southwestern Ohio, by Cincinnati. We have Drake's authority for stating that "the estuary of the Maumee, at the northwest angle of Lake Erie, is infested with this fever;" of late years this tendency to malarial outbreak in the Maumee has diminished in a marked degree. The Health Reports* of Toledo, having a population in 1870, of 31,584 show the following mortality statistics of remittent fever.

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* **Toledo Health Reports, Dr. J. W. Bond, and A. W. Fisher, Health Officers.**

1867.	Deaths,	5.	1874.	Deaths,	1.
1868.	"	2.	1875.	Deaths,	1.
1869.	"	3.			
1870.	"	4.			
Total deaths 4 years		16.			

The drainage, and filling up of lowlands in the neighborhood of the city, has almost stamped out the malarial forms of fever, once so common in the immediate vicinity of Toledo. The boggy island lying above Toledo, known in former times as the "middle ground," and twenty years ago a centre of malarial infection, has been wholly reclaimed by being filled in and drained. Immense sums of money were expended in the enterprise, but results have since shown that this piece of engineering has been a paying investment. From being an unhealthy town, it has become one of the healthiest cities in the State, and with the increased healthfulness there has been an increased influx of settlers, as the following statistics of its population will show, i. e.: population, 1850, 3,829; 1860, 13,768; 1870, 31,584. The population at the present time, is probably 50,000. Other portions of the Maumee Valley, are still more or less infested by malarial fevers. At Dayton, in Miami Valley remittent fever was common twenty-five years ago. In 1870, the population of Dayton was 30,473. The deaths from remittent fever, as evidenced by the Health Reports * for some years back, may be reported as follows:

1870.	Deaths,	6.	1874.	Deaths,	12.
1871.	"	5.	1875.	"	11.
1872.	"	7.	1876.	"	4.
1873.	"	5.			
			Total deaths in 7 years,		50.

At Cincinnati, in the Miami Valley, remittent fever is quite a common disease, prevailing at all seasons of the year. The following table is compiled from the "Cincinnati Health Reports," of Dr. J. J. Quinn, and gives the number of cases treated during thirty-one months, by the Out-door Poor Physicians.

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* Health Reports of Dayton—Thomas L. Neal, Health Officer.

AUTUMNAL FEVERS TREATED BY O. D. P. 1873—4--5.

Years.		Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1873. 7 mo.	Intermittent.						28	19	35	32	40	19	28.	201.
	Remittent.						7	8	5	7	10	7	13.	59.
1874.	Intermittent.	22	26	30	30	38	30	33	24	32	45	32	31.	373.
	Remittent.	7	11	10	5	5	6	4	8	9	11	17	17.	110.
1875.	Intermittent.	28	14	31	23	28	31	15	19	35	39	17	24.	304.
	Remittent.	6	3	1	7	8	3	3	2	2	3	2	1.	41.

It will be noticed that this table also includes the cases of intermittent fever occurring among the pauper patients of the city. The deaths from remittent fever in Cincinnati (with a population in 1870, of 216,239) for several years past are reported as follows:

Years.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.	*Mortality by Years.*
1872.	—	—	—	—	—	—	—	—	—	--	—	—	——
1873.	1			1	1		1	—	1	1	—	1	7
1874.				1					3				4
1875.	1		1			1			3	·1	1		8
												Total,	19

The number of cases of remittent fever occurring annually in this city may be roughly estimated at about 500. The number of case of intermittent fever at about 3000. These malarial fevers are noticed in the great majority of instances, in those wards lying on the Ohio River, or in the immediate neighborhood of Mill Creek Valley. The highlands on the east of Mill Creek, and in its immediate neighborhood, within a radius of from half a mile to a mile, suffer to a less extent. From time to time intermittent fever appears as an epidemic in Cincinnati, notably in the districts known as Columbia, Fulton and Cumminsville. At Carthage, a short distance from the city, situated in the Mill Creek Valley, intermittent fever prevailed as an annual autumnal epidemic until within three years since, when the filling in and drainage of some ponds and lowlands, caused the almost total abatement of the disease. Drs. Langdon, Webb and Bunker, at various times physicians in charge of "Longview Lunatic Asylum," are entitled to all credit for this sanitary improvement. It is hardly necessary to state that when intermittent fever is prevalent in the city a marked increase in the number of cases of remittent occur.

Continental Medicine.

JAS. T. WHITTAKER.

THE RETINAL PURPLE.—The following conclusions are taken from Dr. Franz Boll's original article on the retinal purple as published in the Berlin Akad. Monatsberichten, 1876:

1. The red color of the bottom of the eye, as observed ophthalmoscopically, does not arise from the illuminated bloodvessels of the choroid, but is the essential purple color of the retina itself.

2. This color is only present in life and survives death—especially in warm-blooded animals—only a few moments.

3. If a dying mammal's eye be examined ophthalmoscopically, the moment of death (best that the animal be killed with chloroform) is marked by a sudden blanching of the red fundus oculi. Here is an easy method of recognizing death, which will doubtless prove of great forensic importance.

3. The peculiar color of the retina is always dissipated in life by light. Diffuse daylight blanches it; a longer exposure to direct sunlight discolors the retina entirely. But the purple color is restored again in darkness. These objective changes in the outer joints of the red layer of the retina under the influence of light, constitute without doubt a part of the act of vision.

ANIMAL HEAT.—From the classical investigations and experiments of the distinguished physiologist, Claude Bernard, on Animal heat, its regulation and influence on fever, published in the Giornale Internazionale, 1877, No. 1, are extracted the following conclusions:

By means of thermo-electric sounds it is proven that venous blood is warmer than arterial, and the blood of the vena cava inferior in consequence of thermal sources in the liver, and hepatic vein is warmer than that of the vena cava superior. Since the superior vena cava with its branches is outside of the abdominal cavity, it resembles the superficial peripheric veins in containing cooler blood, and therefore it is that the blood emptied from it into the heart, is cooler than the blood emptied from the heart into the carotid arteries. The right auricle also receives cooler blood from the lower part of the body. But after the cooler and warmer venous blood have become mixed, the blood in the right ventricle is still warmer than that in the left.

As regards the the influence of the nervous system, the author distinguishes between dilating and contracting nerves (*nervi dilatorii et constrictorii*) i. e.: such as effect dilatation or contraction ot the blood vessels. The first set he is inclined to call *trophic* nerves, as he has shown that by section of the trigeminus, paralysis of these nerves ensues and disturbances of nutrition.

Nutrition and animal heat are effected solely by the influence of nerves upon the circulation of the blood. Two kinds of vaso-motor nerves therefore must be recognized: *nervi medullares vaso-dilatorii* or *caloriferi*, which effect oxydation of the tissues, denutrition, a metamorphosis of anatomical elements; 2nd, the *nervi vaso-motorii constrictorii*, which effect nutrition and organization of new tissue. These are also the *nervi frigorifici*, which lower the temperature and hold a balance against continuous oxydation. Wherever then new tissue is formed, the nervi frigorifici are engaged. Therefore it is that wounds cicatrise quicker under cold water irrigation, and in animals in hibernation, than in summer, or in the state of activity.

In fever, on the other hand, there is greater activity of the nervi caloriferi, in consequence of which there is continuous oxydation of tissue, denutrition and emaciation. Exact physiological experimentation thus confirms clinical experience. It is the great heat that constitutes the danger to life in fever; the oxydation of tissue, the reduced nutrition, that leads, unchecked, to death.

The therapeutic indication is to check the extraordinary activity of the calorific nerves by stimulation of the nerve centers presiding over the constricting or frigorific nerves. Hence the efficacy of cold baths. Whether quinia, ergotin and salicylic acid act in the same way, remains to be proven by further experimentation.

THE PATHOGENY AND THERAPY OF WHOOPING COUGH.—Dr. Anton Tschamer, (Graz) treats of whoopingcough in the Jahrb. f. Kinderheil. X, 1 and 2, starting from the universally recognized fact that the disease is *contagious*. As to the nature of the contagium however there is still dispute. The medium of it is the expectoration and also the expired air. The investigations of Letzerich, who referred the disease to the parasites found in the sputa, though they are regarded with distrust, merit further proof. Tschamer undertook to discover in whooping cough parasites peculiar to it, and found in no other lung disease. In the sputa of bronchial catarrh, phthisis pulmonum, bronchiectasis, he found besides the ordinary elements, micrococci also, and bacteria alone and in groups or chains. On the other hand, whooping cough sputa never contained aspergillus which was found twice in the contents of phthisical cavities. He found this parasite also in ear wax and in bone caries.

Whooping cough sputa shows differences from other sputa to the naked eye. It contains whitish and longer yellowish bodies, the size of pin points, which float about for a time and afterwards sink to the bottom of the vessel. The number of these bodies correspond to the intensity of the disease. They may be seen often a day or two before the beginning of the convulsive stage, and when present, are pathognomonic of the disease. In the further examination of these bodies they were first teased in water and glycerine, after being laid 3-24 hours in a solution of potash. Microscopic examination now showed epithelial cells and a net shaped branching mycelium; besides which are to be seen numerous shining spores of different form and size. The white bodies of the sputa showed also; in the latter stages of the disease, colorless hyphens and yellowish, reddish and brown and dark brown spores with occasional hyphens of the same color.

Culture experiments with these parasites of whooping cough sputa developed a form which Tschamer had already observed on the seeds of a decaying orange and on the peel of nearly every orange. Here the parasites appear as small, black points lying between the elevations on the peel. When these points were scraped off they formed a moist powdery mass, which, under the microscope, showed the hyphens and spores of the parasite described. The author succeeded also in finding the parasite on most kinds of apples, also on potato peelings and lemons. As these parasites are present in the sputa of whooping cough and seem to be the cause of this disease, the connection between cause and effect is apparently the ingestion of the fruits mentioned, and the lodgement of the parasites in the air passages. The experiments which the author made upon himself and upon a day laborer, fully confirmed the truth of the conclusion reached. The black mass mentioned was removed from an orange, dried on a glass plate, pulverized and then inhaled with strong inspirations. On the fourth day after the inhalation, the author felt tickling in the throat, and on the eighth day the cough became spasmodic, vomiting occurred only once, but retching was more frequent. The cough was attended with slight expectoration, and now the tickling was felt in the course of the trachea. This condition lasted ten days. The same bodies were found in the expectoration as in children with whooping cough, only their number was less.

The action of the parasites is undoubtedly mechanical, as foreign bodies in the mucous membrane of the air passages. Accordingly the disease localizes itself in certain regions, so that constitutional symptoms do not appear unless complications are present. It is rare to have the opportunity of a post mortem in whooping cough, but when it is offered there is found nothing but the signs of catarrh. We have to do in whooping cough with a *mycosis of the mucous membrane* of the air passages, exactly analogus to the mycoses of the skin, as for instance, herpes tonsurans. That other organisms do not act similarly upon the pulmonary passages, and that these organisms are sometimes inhaled without producing whooping cough, can be explained by the facts that different organisms require different soils for development, and that the mucous membrane of different individuals are more or less sensitive for special organisms.

The incubative stage of whooping cough varies between 2 — 7 days. If a great number of parasites shall have been quickly inhaled, an immediate reaction takes place and the bodies are mostly expelled by cough and sneezing. Thus but few may find their way into the air passages and the irritation follows later, after the parasites shall have sufficiently developed. The rapidity of the spread of the parasites, which may depend upon various circumstances (telluric, atmospheric influences, etc.,) determines the duration of the incubative stage. Before the parasites shall have fastened themselves to the mucous membrane by their fine reticulated mycelium, they excite in it an inflammatory state, which induces the so-called catarrhal stages of whooping cough. The attacks of spasmodic cough which speedily ensue, effect a detachment of the adherent parasites. The single or isolated attacks of cough are explained by reflex action (Brücke). The disease is self-limited and spontaneously eliminative. The inflammation of the mucous membrane continues to spread and, in consequence of it, more mucus is secreted, whereby the epithelium is softened and loosened, and expectorated with its adherent parasites. Thus is the disease cured; new epithelium having been meanwhile produced. The parasites are expectorated thus in greater quantity than generated. The bodies described, consisting of epithelial cells, mycelia and spores, increase with the increase of the expectoration. The author concludes with the statement that the parasites mentioned as being found on fruits, and as being identical in every particular with that found in the sputum of whooping cough, is to be regarded as a "capnodium citri."—*Medizinische Neuigkeiten für Praktische Aertze*, April 21st, 1877.

SPUTUM IN PHTHISIS.—The sputum produced by inflammation of the interstitial tissue of the lungs, presents differences even to the naked eye from the rusty glutinous sputum which has from all time been looked upon as a pathognomonic symptom of ordinary pneumonia. The sputum of ordinary pneumonia consists of the coloring matter of blood corpuscles, emigrated from the pulmonic capillaries mixed with the albuminous exudation of the alveoli and broncheoles, while the sputum of interstitial pneumonia is pure blood mixed with the muco-serous secretion of the air passages containing an abundance of cells. The swelling and thickening of the peribronchial and interalveolar tissue compresses the blood-vessels running through it, strangulates them so, that under pressure of the blood current from behind they are ruptured and the escaping blood makes its way through the walls of the bronchioles and infundibula, which are now softened from interference with their nutrition.

The sputum thus in the different forms of parenchymatous pneumonia presents as shapeless masses, more or less mixed with blood or striped with blood, or even all pure blood. Some times it is bright red, or brownish or blueish red, and often it is in great quantity. In the later course of the disease it takes the glutinous consistence, the color and often also the fetid odor of blood mixed with pus.

According as the disease appears acute or chronic in the first place, according as the disease process is superficial or interstitial, or, finally, according as inflammation of the frame work of the lungs associates itself with the croupous pneumonia, will the sputum change its condition and appearance. Should the inflammation, complicated by implication of the interstitial connective tissue, result in the formation of an abscess, the sputum will become bloody only when a vomica is about to burst into a bronchial tube. But a sputum which is bloody or is striped with blood, instead of being rusty, from the beginning of the attack, is a *symptoma præcox*, especially in drinkers, (Rindfleisch) of threatening gangrene of the affected part of the lungs. In caseous or pyæmic pneumonia, the sputum often becomes bloody only after the disease has been in progress for several days, and the swelling of the interstitial tissue has reached a certain grade. At this time it is seldom absent, and is then one of the first signs. Bloody sputum often precedes an acute attack of caseous pneumonia. It is especially remarkable, this bloody, bluish red sputum, in cases of so-called typhous *infectious* pneumonias. The author never saw a case of this disease without the presence of this sputum, even in the first days of the disease.

While it may happen in genuine croupous pneumonia that a blocked up capillary will burst and let its blood mingle with the exudation in the alveoli, yet this accident is one of the greatest exceptions. "I have seen," says Jürgensen, "at least 1000 cases of pneumonia in the past 12 years, and I remember no single *uncomplicated* case in which there could be any question of hemorrhage." When blood is present it usually shows a mistaken diagnosis; the disease is mostly interstitial pneumonia. Among the complications which may produce bloody sputum are scurvy, purpura hemorrhagica, and similar affections, among which variola is especially mentioned. But these are hemorrhages which only accidentally affect the vessels of the diseased lungs and may be present also in the skin. From all time, sputum which is bloody or is mixed with blood, has been looked upon as a bad sign in pneumonia, and the statement of Aufrecht that this sputum is of no special significance will not be accepted by any experienced physician.

The expectoration in interstitial pneumonia has besides its blood, which may be absent of course if the conditions for it do not exist, another peculiarity, which, according to Buhl, is never absent; that is, it contains an unusually large quantity of alveolar epithelium.

The epithelium of the pulmonary alveoli appears in the sputum, says Dr. Amburger, as always round cells of a diameter of 0.009—0.03 millim, and contains always more or less granular protoplasm. The granular protoplasm shows the amount of fatty degeneration. Pigment granules, of light yellow or black color, are also extremely abundant. Amburger's investigations prove positively that in pure croupous pneumonia, alveolar epithelium does not occur in the sputum.

IS THE UTERUS STRIPPED OF ITS MUCOSA BY PARTURITION. — Two opinions have prevailed on this subject up to the last two years. One, represented by Heschle, maintains that there is nothing left of the mucous membrane after labor, the muscular coat lying bare. The other, represented by M. Duncan, maintains that only a part of the decidua is shed and a soft pulpy mass of it remains. Quite recently, Dr. Carl Friedländer, of Strassburg, has instituted some investigations to solve this question, and he has shown that while the outer layer of the decidua is removed, the inner layer containing the gland apparatus remains adherent. The inside of the uterus after labor cannot be compared, as by Cruveilhier, to a stump after amputation. There is only a light scaling off from its surface, like epithelium from the skin, taking with it the rete Malpighi, but leaving the corpus papillare. The conclusions of this observer have been confirmed later by Kundrat and Englemann, 1873, and Langhaus, 1875. This last author maintained that the rupture takes place in the upper layer of the gland tissue, but Friedländer has since found that the line of rupture runs through the cellular layer, and still later observations have confirmed this view. In examining the inner surface of the uterus the specimen, above all things, must be as fresh as possible, as the fluids left in the uterus, without exactly undergoing decomposition, still act destructively upon the mucous membrane after death, so that bared muscles may be frequently seen. The author will not deny that the cellular layer and even the upper layer of the decidua may be separated by labor,—he has seen it twice himslf—but such accidents belong to the exception and are not the rule. So that an examination of the part of the decidua expelled will show nothing of gland tissue, only the large celled decidual tissue. If the separation occurred in the upper gland layer, such glands should be seen under the microscope, which is not the case. It is not possible, however, to draw a sharp line of demarcation between the cell layer and the gland layer. For it is only in the last stages of gestation that the glands of the upper layers of the decidua are entirely lost, both cavity and cover, and at the end of pregnancy it is only in the deepest layers of the decidua that we find glands lined with epithelial cells. Above these glands may be seen, immediately after labor. a tolerably thick, but quickly destroyed layer of tissue. Precisely the same state of things is seen at the placental insertion. Here there remains after expulsion of the placenta, a layer of glands covered by a thin layer of cells, Under special circumstances, as for instance, after operations, it may happen, as a recently reported case proves, that the whole cell layer of the decidua, indeed the whole decidua, remains in the uterus. Of course the cell layer can not remain intact at the insertion of the placenta. —*Archiv. f. Gynakologie*, IX. 1, p. 22.

SCLEROSIS OF THE LATERAL COLUMNS OF THE SPINAL CORD.—In the Deutschen Zeitschrift f. praktische Medizin, 1876, No. 16, 19, Dr. Oskar Berger publishes several articles (to be still further continued) on the Pathology and Therapy of Diseases of the Spinal Cord, and especially on Primary Sclerosis of the Lateral Columns. This affection was first clinically isolated from other affections and described as a separate disease by Charcot. That special disease of the lateral columns depends upon special disposition from the embryonal state, as Charcot maintained, upon the authority of Pierret, is, according to the investigations of Kölliker, Henle and Flechsig, very improbable. On the other hand, it is known from the latest physiological studies of Woroschiloff, that these columns have a peculiar physiological importance. These studies have shown that the white anterior and posterior columns do not carry conducting nerves from the brain to the spinal nerves, but that they contain only short fibres uniting neighboring nerves together, while the long nerves which connect the brain and spinal nerves are to be found in the lateral columns. The lateral columns of each half of the cord therefore, are the conducting paths of both motor and sensory fibres to both upper and lower extremities. In harmony with this view is the anatomical fact that the lateral columns increase as they pass up to the brain. These experiments showed further that the co-ordinated movements of the legs only occur so long as the middle third of the lateral columns remains uninjured; that the motor fibres for both lower extremities run in the anterior halves of the lateral columns; that the fibres for the legs are more in the middle, and that extension of the legs is interfered with by destruction of the posterior fifth.

In 1851 Türck described a disease of the spinal cord, secondary to brain affection, which extended from the disease center in the brain along the crus cerebri, pons and pyramid of the same side, to cross over to the opposite lateral column, often implicating also the median portion of the corresponding anterior column, (column of Türck).

The lateral column is always affected in its posterior fibres. This secondary degeneration of the lateral columns explains the late contractions which so often ensue after hemiplegias.

This degeneration of the lateral columns may also occur primarily, that is, without affection of the brain. When the cord is primarily affected, the anatomical changes are exactly the same as in tabes dorsalis, to wit: proliferation of the connective tissue with consecutive destruction of the nerve elements. The disease may be recognized also, microscopically, by the gray discoloration of the affected parts. The primary may be distinguished from the secondary sclerosis by the fact that the primary disease is always symmetrical, *i. e.*: bilateral, and it is always more extended. The disease may attack the whole length of the lateral tract, from the lumbar enlargement to the crus cerebri, and sometimes involve also the cords of Türck.

From a clinical standpoint, the disease takes the course of "a chronic affection without disturbance of sensibility worthy of mention. It is exclusively a motor paraplegia of very slow development, and especially characterized by a pronounced muscular tension and inclination to tonic and clonic cramp. The nutrition of the muscle remains undisturbed all the time, electric irritatibility is unaffected, the functions of the bladder, the rectum and the genital organs remain intact."

It commences usually with light paretic phenomena and a feeling of weariness in the lower extremities, which are affected later with a peculiar stiffness. With these manifestations are associated short tonic extensions more rarely flexions at the knee joints, especially observed in the horizontal position. These tonic extensions or stretchings, not infrequently occur in the act of arising. Still later there are clonic twitchings, tremor or real convulsions. Then the stiffness in the knee becomes apparent to passive motion, as also does that of the hip, especially in movements of abduction. Walking becomes thus peculiarly stiff and difficult, the steps are short and upon the toes, so that it is after the manner of a sudden shoving forwards. In narcosis the muscles relax, and if no secondary changes shall have taken place in the bones, the joints are movable.

The nutrition of the muscles and their electric irritability remain undisturbed. Sensibility is normal also. But in many cases cutaneous reflex excitability is so greatly increased as to form a pathognostic symptom. Reflex excitability is especially easily induced in the tendons of the patella, the "leg phenomena" of Westphal, that is, tapping upon the ligamentum patella induces repeated contraction of the quadriceps cruris; and in the tendo Achilles (the foot phenomena of W.,) that is, on forcible dorsal flexion of the foot, rhythmic plantar and dorsal flexion occur to be at once overcome by forcible plantar flexion. The same symptom occurs also in secondary lateral sclerosis. Besides, there is frequently experienced a feeling of coldness in the legs.

The disease usually remains at this stage for years until gradually the stiffness increases and the patient is chained to his bed. The upper extremities are spared, as a rule, and the muscles supplied by the cerebral nerves are always spared. But the tendon reflex (Sehnen reflex,) that is, stiffness at the elbows, occurs also in the arm. The bladder and rectum never being involved in any way, the life of the patient is never directly attacked by the disease.

In extensive affections of the cord, complications may occur of course, more especially with chronic myelitis and with certain forms of progressive paralysis of the insane.

The paresis of the motor nerves in this disease is easily explained by the fact that the lateral columns, as stated, are the tracts of the voluntary nerve fibres. Paraplegia does not usually occur however, because the disease is limited to the posterior parts of the lateral columns. The irritability of the motor nerves is explicable by the effect of the chronic inflammation of the interstitial connective tissue upon the nerve fibres, and the increased reflex excitability is probably to be referred to the implication of the inhibitory nerves running in the middle third of the lateral columns.

As to the etiology of the disease, Berger could ascertain nothing definite.

The prognosis is the most favorable of all the chronic affections of the spinal cord, because, as stated, life is not directly threatened by it.

In the first stages, the disease is even amenable to treatment. Several cases were improved by the application of the constant galvanic current along the spinal column. But the author warns against the peripheric use of galvanism, as well as Faradization. In one case marked improvement followed the "inunction cure" and iodide of potassium.

THE SURGICAL REPORT ON CEREBRAL LOCALIZATIONS. — M. Gosselin made the report to the Paris Academy of Medicine, April 3rd, 1877, on the work of M. Lucas-Championniére, entitled Cerebral Localizations and Trepan Applications The reporter had analyzed with care this remarkable work, and reports *en resume* to the effect that the new physiological views will be of value in diagnosis and interpretation of functional symptoms, but will be but very exceptional adjuvants to therapy. That is, that the trepan should be considered as an operation much more useful in preventing septicæmia and the retention of pus in the interior of the skull, than in relieving lesions of the encephalon from osseous fragments or other vulnerant bodies. In the present state of surgery at least, we are sure of what we do and desire in looking to the first of these indications; but we do not know or we know but little in looking to the second.—*La France Medicale,* April, 7th, 1877.

THE VELOCITY OF SPEECH. — An Italian physiologist, M. Marotti, has just communicated to the Roman Academy some curious details regarding the velocity of speech. Gibbon had calculated that an English orator pronounced about 7200 words in an hour, i. e.: 120 words a minute, 2 a second. From the reports of the Italian stenographers, Mariotti has made calculations for the members of the Italian parliament as follows: M. Foresta, 60 words a minute; Massimo d'Azeglio, 90; Ratazzo, 150; Cordora, the most rapid of all, 218.

It has been remarked that the orators gifted with such velocity of speech are more agreeable than powerful, as they do not give time for ideas to sink in.

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Translations.

By H. ILLOWY, M. D. Cincinnati, Ohio.

Spasmodic Tabes Dorsalis.

A Clinical Lecture delivered by PROF. CHARCOT, at the Hospital la Salpetriere.—Condensed by Bourneville. (1)

Gentlemen: I shall bring before you to-day several patients, in whom you will be able to study at your leisure the symptoms of a particular spinal affection; one thoroughly distinct, in my opinion, from all the other forms of chronic myelitis with which it has, until now, been confounded. This malady, which I propose to you to designate, at least provisionally, by the name of *spasmodic tabes dorsalis* is not so very rare, and there is certainly not a physician who has not encountered it several times in his practice. It has however not been noticed with that attention that it deserves. Actually, so far as I am aware of, but a sole author, Dr. Erb, of Heidelberg, mentions this affection in a special manner and attempted to determine its characteristics. You will read with great profit the short but substantial description that he has given of it in the Berliner Klin. Wochensch. (20. 1875) (2)

It will not be mal-apropos to seek to justify, at the outset, in a few words the designation I just now proposed to you for a particular pathological form. This affection, I acknowledge, and it need not be argued, possesses an organic substratum, an anatomical lesion, more or less profound, of which the spinal marrow is the seat. It is equally certain, considering only the nature of the symptoms, that this lesion extends also to the lateral spinal fascicles. Lastly it is possible that, as remarked by Dr. Erb, the mooted spinal change be no other than the systematic lesion described for the first time by Türck, and which in my turn I made known under the name of "*Symmetric and primitive sclerosis of the lateral fasciculi of the spinal cord.*" It must, however, not be forgotten that all the observations, wherein lateral symmetric primitive sclerosis without participation of the anterior gray cornua (3) were anatomically verified,

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1. This lecture was delivered in 1875. The essential parts were reproduced by Dr Betouse (one of the hearers) in his inaugural dissertation. (May 8th, 1876,—Study of Spasm. tabes dors. Paris). In this work will be found the detailed observations of the maladies which in this lecture have served for demonstration.—

2. Ueber einen wenig bekannten spinalen Symptomen Complex. Berlin. Klin. Wochenschrift, No. 26. 1875. Consult on the same subject an interesting work published by O. Berger, of Breslau: Zur Pathologie und Therapie der Ruecken-marks Krankheiten—primare Sclerose der Seitenstrange. Separate Abdruck aus der Deutsch. Zeitschift fuer Praktische Medizin.

3. Lateral symmetric sclerosis, with participation of the anterior cornua, is the *anatomical substratum* of the affection, very distinct from this, which I have described under the name of "lateral amyotrophic sclerosis." (See Charcot Lecons faites a la Salpetriere. 2nd. Partie 2nd. Fascicule 12 and 13 lecons.)

and in which, during life, the clinic revealed the existence of symptoms, which to-day, might seem to belong to the form of spasmodic tabes dorsalis, those observations I say, by a singular concurrence of circumstances, are all of a relatively old date. They are like old souvenirs, somewhat effaced, and must be revivified. It is for this reason that I think it prudent to await the verification of fresh autopsies before deciding upon denominating a malady after its anatomical character.

On the other hand the antique appellation, *tabes dorsalis*, notwithstanding its vagueness, may be used to designate at the least a spinal affection, primitively chronic, which, like the one now occupying our attention, progresses almost always to a fatal termination, though in a very slow manner and definitely, after the fashion of locomotor ataxia, with which it may be placed in parallel in more than one point, scarcely ever pardons. As to the adjective spasmodic, it is destined to bring out in relief the dominant clinical phenomenon: I mean the contraction which almost from the outset affects the members afflicted, soon becomes permanent and constitutes in a sort, symptomatically the whole malady. Whilst progressive locomotor ataxia. which in opposition might be called as I proposed it once, *ataxic tabes dorsalis*, attacks at first the sensory part of the spinal system (shooting pains, anæsthesic and hyperæsthesic plaques, 'spots',) and determines only secondarily, at least in the great majority of cases, the incoordination of movements; spasmodic tabes, on the contrary, remains limited during the whole period of its duration to the motor apparatus. It characterizes itself, in summum, in its state of complete development by a permanent contraction, which gradually increases, and sooner or later brings on impotence of the limbs, without ever being accompanied by any notable disturbance of sensibility.

That which has been said will suffice to show that spasmodic tabes dorsalis has as yet no actual existence except in the domain of clinical medicine, the same as was the case some time ago with locomotor ataxia. In truth, it presents itself here with traits sufficiently accentuated that it is almost always possible in practice to distinugish it, not alone from that great systematic spinal malady called locomotor ataxia, but also from *lateral amyotrophic sclerosis*, from *common transverse myelitis*, from *myelitis by compression*, and lastly though it may sometimes be very difficult, from *sclerosis in plaques of the spinal form* (sclerosis enplaques de forme spinale.)—In other words it can be distinguished from all those spinal affections which in the description, otherwise very remarkable, of Olivier of Angers are found united in one heterogenous group, under the name of *chronic myelitis*, (1) and which clinical analysis enlightened, by pathological anatomy, tends to separate.

If, in fact, among the different pathological conditions which I have just enumerated, the analogies are numerous, the points of

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1. Ollivier d'Angers. Traite de Maladie de la Moelle Epiniere. 3rd. Edition. Paris 1837. t. II, p. 426.

contact frequent, the differential characters are also not wanting. I hope to demonstrate this soon to you. But I believe it opportune to present to you, at the outset, a tableau, which shall bring out in relief the predominating symptoms and the usual mode of evolution of spasmodic tabes. In the course of this description I shall have constantly before me the clinical history of locomotor ataxia, which will serve as a contrast.

I will recall to your memory the principal phenomena which mark the first phases of locomotor ataxia, I mean the vulgar form of the malady, that responding to the classic type created by Duchenne (of Boulogne.) These are, and you certainly have not forgotten them, in the first rank, and long before motor incoörrdination from which the malady takes its name, has set in, diverse troubles of sensibility: shooting and tearing pains coming on by paroxysms and having their seat in the limbs, the trunk, the face, —fixed pain in certain spots, and partial anæsthesias and hyperæsthesias. The disturbances, termed *cephalic* such as amblyopia or amaurosis, paralysis of the motor muscles of the eye, also belong to this period. Lastly the incontinence of urine, the dysuria, the gastric disturbances, very often give evidence already at this stage of the participation of the visceral nerves. —

In every thing else, it has from the outset the physiognomy of spasmodic tabes dorsalis. Here the first, and for some time only symptom is a state of paresis, involving equally both inferior limbs or affecting one more than the other, and having at first no other effect than to render walking, especially in the morning just after getting out of bed, some what difficult. The patients portray their situation by saying that they tire very easily, that their limbs seem heavy and that in walking the leg drags. To this paresis there is soon superadded a tendency, more or less pronounced, to muscular spasms.

Thus, when in the horizontal position, as in bed for example, the affected limbs are seized with paroxysms of stiffening, especially in the sense of extension and adduction, to a very great degree. They become momentarily like rigid inflexible bars. Moreover, without appreciable cause they are seized with trembling, which, whilst remaining limited at times to the extremities, will at other times extend the whole length of the limbs, and may even communicate itself to the body. (Spontaneous trepidation). This trepidation the physician can excite almost at will by simply elevating somewhat briskly, with the palm of the hand, the heel or extremity of the toes. (Provoked trepidation.) The rigidity — and as much may be said of the trepidation — is more pronounced when the patient gets out of bed and stands erect. It interferes with the gait more and more, in proportion, as in consequence of the progression of the malady, it becomes more marked and tends to become permanent. (1) It is however only in the more advanced phases of

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1. When the contracture has become permanent, it persists even in bed, but it is more

the malady after a lapse of several years, that walking is rendered definitely impracticable. I confine myself merely to indicating to you these diverse phenomena without entering into a description en régle, as we have already had occasion to study them before, apropos of sclerosis in plaques, where they are found in all their details. (1)

Nevertheless, whatever be the intensity of the symptoms pertaining to the motor sphere, the sensibility remains intact; no anæsthesia, no hyperæsthesia, no disturbance of the cutaneous sensibility; no lumbar pains; no sensations of constriction, where the patient seems to be girded with pain, no formication, no numbness, no sense of constriction in the limbs, — or if these symptoms are present, they are so slightly accentuated that they must evidently be relegated as secondary— no shooting or tearing pains. Furthermore the symptoms called *cephalic* are wanting; as also the disturbances of the bladder and rectum. Lastly, and this is a trait of sufficient interest to be brought out in relief, the genital functions, which in man are so profoundly affected from the outset of the disease in locomotor ataxia, continue almost to the very last in the possessson of their powers in the patients afflicted with spasmodic tabes.

The line of demarcation between these two affections becomes more marked in the more advanced phases of their evolution. You are aware that the second stage of locomotor ataxia is usually dated from the period when the phenomena of motor incoördination are superadded to the symptoms of disturbed sensibility, and the others above mentioned. It is then that in the voluntary acts of standing, and especially in walking, the contradictory and incoordinate movements of the lower extremities manifest themselves, becoming so exaggerated, when the patient is placed in the dark, as to render progression or standing exceedingly difficult, almost impossible, the peculiar character of which attracted so vividly the attention of the predecessors of Duchenne.

The locomotory disorders become more marked in spasmodic tabes as the malady progresses, but they are of a type altogether different.

There are not found in spasmodic tabes those supple limbs, flexible almost to excess, seeming at times as if dislocated, that immoderate luxuriousness of movement that gives to the gait of the ataxic its special type, and in consequence of which the feet are in some sort thrown forward and outward, falling back heavily to the ground at each step. Here on the contrary, the lower limbs, rigid in all their articulations, are firmly applied one to the other, cannot separate themselves except by efforts wherein the muscles inserted at the pelvis play the principal role, and during which the trunk

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marked when the patient, holding himself erect, tries to walk. If he remain seated on a somewhat high chair it sometimes happens that the legs remain in a horizontal position, slightly flexed, and the feet not touching the ground.

1. Lecons sur les maladies du systeme nerveux, 2nd Edition t. I, p. 245.

is thrown backwards. It is with great difficulty that the feet, during this time, detach themselves from the ground, to which they seem firmly adherent; make a rubbing noise in their movements of progression, stumble over the slightest obstacle and often embarrass themselves. Besides they are frequently seized with trembling, which, spreading from the extremity of a limb, may at times impress upon the whole body a vibratory movement. Thus the patient, aided by cane or crutch, walks slowly and painfully; the gait is nevertheless sufficiently firm and—important trait to be remembered—contrary to what occurs in ataxia, is not the least modified by closure of the eyes.

This so peculiar gait which I have attempted to depict to you, I have shown you in natura. It was also observed by Ollivier d'Angers, who most happily described it in a passage which I must cite to you.

"Each foot," he says, "detaches itself with great difficulty from the ground and in the efforts that the patient makes to raise it entirely and carry it forward, the body straightens, then throws itself backwards, to counterbalance as it were, the weight of the lower limb, which is seized with involuntary trembling before it is again placed on the ground. In these movements of progression the point of the foot (toes) is at times lowered, and rubs more or less against the ground before detaching itself from it; at other times it is raised briskly at the same time that the foot is thrown outwards. I saw some patients that could not walk a step, although supported by a cane, except by throwing the trunk and head backward in such a way, that their gait resembled somewhat that caused by tetanus." (1)

This discription is perfectly exact and applies in all points, and you can verify it for the most part in the patients I have brought before you. But there is a variety in this type to which I must call your attention; you can study its characteristics in one of these patients — the one named Oss. You perceive how, supported on crutches, this woman walks, the trunk bent forwards, literally upon her toes. It is because at every step, on account of the predominance of the tonic spasms in the muscles of the calf, the heel is forcibly drawn upward and barely touches the ground. Therefore, as you can see, the shoes of this woman are most worn at the toes. The foot however as in other cases, is seized with trembling every time that it is carried forward and this trembling extends for the moment to the whole body. When the patient descends an inclined plane, she feels herself pushed forward as it were, by the weight of the body, obliged to hasten her steps and menaced every instant with a fall, face to the ground. This second mode of progression is according, to Dr. Erb, the most common one in cases of this genre. From personal observation however, I am led to

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1. Loc. Cetat. p. 427.

believe that this second form is less frequently met with than the first.

However this may be, we must now contrast the two affections, that we have opposed one to the other, at the period when they have reached the last stage of their evolution. You will be able to note that their distinctive characteristics are not less marked at this than at the other periods.

Deprived at this period, in both of these affections, of the use of their lower limbs, incapable of holding themselves erect or of walking, the ataxic, as well as the patient afflicted with spasmodic tabes pass their days on the sofa, in the arm chair, or remain confined to the bed. We can however easily recognize that the causes of impotence of the lower limbs are radically different in the two affections. In the ataxic patient reduced to this condition, it is above all the power of coördination of movements that is at fault; these are still energetic for a long time, even violent, but they cannot be adapted to the execution of any physiological act. In spasmodic tabes, however, the impotence is evidently dependant upon contracture, which, pushed to the extreme, is become absolutely permanent and maintains the limbs invincibly in a condition of forced extension and adduction, rendering all voluntary movements impossible. Furthermore, the trembling, spontaneous or provoked, which, without exceptional rare complications, is not observed at any period in locomotor ataxia, continues to manifest itself here to a very high degree. (1) It is sometimes so severe as to produce veritable convulsive crises in the inferior extremities, recurring paroxysmally; and the name spinal epilepsy given to it is a very good and expressive one.

Besides these disorders, there are at this period which we are considering, still other phenomena that serve to differentiate the two maladies. In ataxia, the various troubles of sensibility, already marked in the first stage, persist or are aggravated. As much may be said of the cephalic symptoms and of the functional troubles of the rectum and bladder. Very generally the urine becomes fetid and purulent, in consequence of ulcerative inflammation of the mucous membrane of the bladder. This is one of the great dangers that menaces the life of the patient. Nothing like it is seen in persons suffering from spasmodic tabes. With them among other things, the sensibility remains undisturbed to the very last; there are no disturbances of vision, no strabismus, in one word, none of the symptoms termed cephalic. The only difficulty that manifests itself in the emission of urine, is in women, and depends upon the

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1. It is difficult for me to say at what period this phenomenon of trembling, so frequently mentioned in this lecture, was first noticed and described.—In an observation of a female with sclerosis in plaques, in 1862 in Salpetriere, by M. Vulpian and myself, we mentioned it in the following terms. "When one of the feet of this woman are flexed and held in this position by a strange hand, there is quickly produced a trembling, difficult to repress, at times impossible to arrest if the right foot be the one tried. There is thus clearly indicated for the first time both the epileptoid trembling of the inferior limb and the best means of provoking it."

(For further information on this point consult the balance of note No. 2, in Progres Medical No. 46, Transl.)

difficulty experienced in spreading the thighs apart. There is no tendency to the formation of eschars, and the muscular masses of the lower limbs, which, in the ataxic become emaciated at times to an extreme degree, in spasmodic tabes on the contrary, preserve a form and consistence in some sort proportioned to the intensity of the contraction of which they may be the seat.

This will suffice I believe, to demonstrate to you that the distinction between locomotor ataxia and spasmodic tabes is sufficiently striking in the fundamental points. I will therefore abandon the parallel, to concentrate your attention upon the latter of these affections, the description of which I desire to conclude with some new traits.

It manifests itself more particularly between the ages of 30 and 40 years. I am inclined to believe that it is less frequent in the female than in the male. It is not a very common malady. I have not been able, in traversing this vast hospital, to gather more than five cases to present to you, whilst it would have been very easy to show you at least 40 cases of locomotor ataxia.

The causes, under the influence of which the malady developes, are unknown at present. Generally the influence of the prolonged action of moist cold, and a sufficiently injurious one it is, is invoked in the majority of cases under observation. In the patients I have presented to you, and the most of whom are still able to stand erect, better or worse, the first appearance dates back 8, 10 and 15 years, Besides it does not rarely happen that, having reached a certain degree, it remains stationary for several years.

Generally limited to the inferior extremities for the whole period of its duration, it may nevertheless extend, but that very slowly, to the superior extremities. These become then the seat of various phenomena, which we have described above, and which make their appearance successively. At first it is a state of paresis of the hands, incapacitating them from seizing objects. From time to time the fingers become involuntarily flexed into the palms of the hand. Later on the flexure becomes permanent and invincible. Next comes the turn of the wrist, then of the elbow, which becomes stiff in extension and pronation. When things have reached this stage, the superior extremities remain immobile, rigid and more or less firmly applied to the side of the trunk. The trembling is at all times less pronounced in the superior than in the inferior extremities. I have not yet had occasion to observe it very distinctly there.

The sacro-lumbar masses and the muscles of the abdomen may also be affected. Consequently, the belly becomes protuberant, hard to pressure, separated from the base of the thorax by a horizontal furrow more or less profound, the whole having a sort of saddle shape.

These phenomena are easily observed when the patients are in bed. The exacerbation that occurs at intervals in the contraction of the abominal muscles, may have the effect of temporarily embarrassing the respiration.

Nevertheless, though the malady progresses, the general health may remain unaffected for an indefinite period. Nutrition, even in those patients confined to their bed, continues to be normally performed, as well in the afflicted limbs as in the balance of the body. It seems that the malady by the accidents proper to it alone, can never determine directly a fatal termination. This without doubt always supervenes through some intercurrent disease. One of the patients here, presents already for some time positive symptoms of pulmonary tuberculisation. This, as I have remarked to you on numerous occasions, is a frequent complication of the advanced stages of diverse forms of spinal sclerosis.

Spasmodic tabes once developed, can it retrograde spontaneously, or its action be confined within certain limits by therapeutic means? I do not know. As regards the last point I can only say that the attempts so far made, even in cases where the malady had not reached its greatest degree, did not prove very successful. Hydrotherapy, which, employed methodically and for a long time, has, in some forms of ataxia, brought about some very happy results, the repeated application of the heated iron, (pointe de-feu) the length of the spinal column, the application of continued currents, have not resulted, for the present, so far as my practice is concerned, in more than temporary improvement. The administration of the bromide of potassium, of sodium or ammonium, singly or all combined, will almost certainly diminish, even arrest completely, the trembling and contracture. The doses must however at all times be very large to obtain this result, which, besides, is not maintained for longer than a few days after the cessation of the administration of the medicine. Dr. Erb has been more successful; he has once seen a cure result in a true case of recent date, from galvano-therapy, and claims for other cases most earnest and remarkable improvement.

We can hope therefore, that when the malady will have been better studied, and we shall have learned to recognize it in its early stages, the prognosis will also become more favorable.

To differentiate clinically, spasmodic tabes from locomotor ataxia, I hope to have made it sufficiently clear by the expose above given, is generally an easy matter. The difficulty in diagnosis is not in this direction; where it really lies is between it and other forms of chronic myelitis. I shall attempt to show you, nevertheless, by a few examples, how the solution of the problem may be realized.—I must however at the outset make you aware that there is not a single symptom of spasmodic tabes, that is really proper to it alone. The permanent contracture, preceded by paresis as well as the trembling, may manifest themselves—as is illustrated by the history of hysteria,—without the least trace of a spinal lesion appreciable to our means of investigation. On the other hand these same symptoms are, as you know from our previous studies, we might say the obligatory accompaniments of all inflamations of the spinal marrow, with the sole condition that they involve, to a certain extent, the lateral system of fasciculi; be it the *insular* form, or the contrary, the *fasciculated form of spinal sclerosis.* It is for this reason that you see these symptoms in the most diverse maladies where the fasciculi in question are affected: Permanent hemiplegic contracture, consecutive to a cerebral lesion en foyer (circumscribed;) general progressive paralysis; partial transverse myelitis, primitive or determined by compression; amyotrophic lateral sclerosis, and in sclerosis in disseminated plaques etc. In making a diagnosis of spasmodic tabes therefore, it is not so much the symptoms themselves that are to be considered as the mode of repartition and of evolution; particularly their isolation, from which results the monotony of the clinical tableau of this malady, should be taken in consideration as an element of the first importance, for, unless there be some fortuitous complication, we may say every spinal affection in which disturbances of the sensibility or intelligence, functional disorders of the rectum and bladder, paralysis of the motor ocular muscles, trophic muscular lesions manifest themselves, associated with contracture, is *not* spasmodic tabes. This being determined, I leave aside certain morbid conditions, for example hysterical contractures, (1) those of hemiplegia, which offer no serious difficulty in recognition, to take up certain affections which may cause even a practised eye to err.

I bring before you this woman, named Seb—,aged 40 years, and confined to her bed for two years, having become unable to walk or stand erect. You perceive that her lower limbs, upon which she cannot impress the least voluntary motion, are not flaccid and inert, as is the case in certain forms of paraplegia; they are on the contrary, rigid in extension and adduction; there is experienced as much resistance in trying to flex them, as there would be if being flexed, extension should be attempted. Trepidation is excited by simply moving the point of the foot, and sometimes comes on spontaneously under the form of spinal epilepsy. I have known this patient for several years when she was still able to walk, painfully it is true, a few steps in the ward, supporting herself by the footboards of the beds or pushing a chair before her, the back of which she vigorously grasped; at every step the trunk bent strongly backwards, inclining now to one side then to the other; on the whole, the gait was almost that which I endeavored to portray to you as characteristic of spasmodic tabes.—If we ceased our examination here, you might suppose that we had a case of that malady before us; but indeed we need only insist on a few details, which a less superficial examination will disclose, to undeceive you.

One day, about eight years ago, after having very much fatigued herself, and her body perspiring freely, she rested herself for a time

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1. On the diagnosis of hysterical contracture, see—Charcot *Lecons sur les maladies du systeme nerveux*, t. I. p. 347, and Bourneville et Voulet *De la contracture hysterique*, etc.

in a strong draught of cold air. Shortly afterwards she experienced a sensation which she likened to that which might be caused by a stream of ice water running down her back. This sensation was followed by severe pain, accompanied by a feeling of constriction in the back and region of the kidney. This feeling of constriction, which like a girdle ran along the base of the thorax, persists to this day. At the same time there supervened in the lower limbs a feeling of formication and pricking. It seemed to her as if they were traversed now by a stream of very hot water and then again by a stream of cold water; that they are encircled by very tight bands—these phenomena have not ceased to exist. Several days after the appearance of these disturbances of the sensibility, paresis supervened, to which was soon added rigidity, at first temporary, then permanent, trepidation, the paroxysms of spinal epilepsy.

You can actually verify, as we have done many times in the five years since this patient was admitted to the hospital, the existence of a very pronounced obnubilation of the sensibility in its diverse modes over the whole extent of the lower limbs and the abdomen. If the skin be pinched on any part of the thigh or leg, or if the sole of the foot be tickled, with the exception of the muscular shock determined by reflex action, there will be manifested the various phenomena of the *dysæsthesia*, to which I called your attention when speaking of paraplegias consecutive to slow compression of the spinal cord. (1) To complete this picture I will add that at the commencement, the desire to micturate became imperative and would be promptly gratified; that since several years paresis of the bladder had ensued, necessitating catheterism now and then; lastly the urine is habitually fetid, troubled, and generally deposits a muco-purulent sediment, more or less abundant.

These symptoms which we have just passed in review, their mode of succession and connection, all in a word tend, as you will have perceived, to establish that the spinal lesion with which our patient is afflicted, is a *transverse dorsal chronic myelitis* with consecutive sclerotic degeneration of the lateral fasciculi. It seems to me useless to insist, in order to make it more apparent, that the various troubles of sensibility enumerated above; that the paresis of the bladder and the emission of muco-purulent urine, should be counted above all among the symptoms that accentuate the line of demarcation between this form of myelitis and spasmodic tabes.

Where partial myelitis is due to gradual compression of the spinal cord, it is more particularly characterized, even in the absenceof all vetebral deformity, by the presence of the pseudo-neuralgias, the clinical importance of which, I at the time endeavored to bring out, and the interest in which, in the category we are now studying, should be still greater, as these pains manifest themselves as prodroma, even before the symptoms of paresis are in the least way noticed. (2)

If however, instead of embracing the cord throughout its whole

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1. Lecons sur les maladies du systeme nerveux. T. II, p. 140. Charcot.
2. Loc. cit. p. 98.

transverse thickness, the lesion, of whatever nature it, be remains limited to a lateral moiety of the nerve cord, the symptomatology will have the type of spinal hemiparaplegia with crossed anæsthesia and (1) this will make it more easy to determine the diagnosis.

Lateral amyotrophic sclerosis has in common with spasmodic tabes, paresis followed by rigidity, the absence of troubles of sensibility, and of disorders of the bladder and rectum; but it is distinguished from the latter, it may be said markedly, even from the outset, by the atrophy which the muscular masses in the affected parts undergo, by the more rapid evolution of the malady, taken as a whole, and by the appearance in the last stage of symptoms connected with the medulla oblongata. Moreover in this affection it is generally the superior extremities which are the first to be invaded, contrary to what occurs in spasmodic tabes. (2)

Lastly there remains only to be signalized the semblance which in certain cases may exist between *spasmodic tabes* and *sclerosis in plaques of the nervous centers*. It is here as I have already remarked to you on numerous occasions that we must expect to meet with, more than once, the stumbling block to diagnosis. When multilocular sclerosis presents itself with all these original appearances of spinal, medullary and cerebral symptoms which characterizes it in its type of complete development, it is certainly not difficult to establish its identity. But when we have to deal with imperfect forms, it is altogether another thing. There is in fact not one symptom that may not be found wanting. Thus to cite you but one example: the clinical tableau of *sclerosis in plaques* is sometimes found reduced to simply a contracture of the inferior extremities, with or without concomitant rigidity of the upper limbs. (3) Even in such cases, the actual or passed co-existence of any one of the symptoms described as cerebral, as nystagmus, dyplopia, particular embarassment of speech, vertigo, special disturbance of the intelligence, this co-existence, I say, would furnish proof of a decisive character. But in the absence of this combination I do not see upon what solid basis a diagnosis could be established. There would be no other resource left but that of presumption. Perhaps a more attentive and minute observation will disclose, be it in the symptomatology itself or in the etiological circumstances so little studied as yet, some new trait which till this moment has escaped our notice, which will however in the future, draw a well marked line of demarcation between the two maladies. The future will show whether our hopes in this direction are illusory. (4)

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1. Loc. cit., p. 118. 2. Loc. cit., p. 240.

3 Several cases of this genre are found collected in a memoir presented to the Societe des hopitaux by Vulpian (Union Medicale, 1865.) M. Charcot has since then observed several, see—*Lecons sur les maladies du systeme nerveux*—2nd Edition, t. I, p. 264.

4. One of the cases presented as spasmodic tabes has since died. The autopsy did not confirm the diagnosis, which had been made with some reserve. There were disclosed disseminated sclerotic plaques limited to the inferior portion of the cerebral peduncles to the anterior pyramids in the medulla, and occupying in the spinal cord on certain points the posterior fascicles, (region cervicale,) at other points the lateral fascicles. (Region dorsale infericure). The cerebral hemispheres were throughout their extent, free from alteration. The details of this observation will be published in extenso on another occasion,—for the present we content ourselves with drawing attention to difficulty in diagnosis which the clinician may encounter when he meets with certain imperfect forms of sclerosis in plaques.

Proceedings of Societies.

PROCEEDINGS OF THE CINCINNATI MEDICAL SOCIETY.

Reported by P. ZENNER, M. D., Secretary.

Society met Jan. 16th, 1877. In the absence of Dr. Murphy, Dr. Heighway was elected Chairman for the evening.

Dr. Wm. Judkins presented a post mortem specimen, a calcarious mass found in the longitudinal fissure between the anterior lobes of the brain, with the following history:

A gentleman, 36 years of age, had been subject to attacks of despondency more or less during the last year of his life. For three weeks there were some head symptoms, headache, etc., and for ten nights he suffered with insomnia. On Monday night he slept well; at 8 A. M., he was found to be breathing stertorously, could not be aroused, and died at 10 A. M.

The post mortem examination revealed, in addition to the above specimen, congestion of the base of the brain, and congestion of the base of the kidneys.

Dr. McKenzie, referring to the specimen presented, said that ossification of the dura mater, though an abnormality, was not in all cases the result of disease, at least such as would cause any symptoms during life. He referred to a specimen in the museum of the Cincinnati Hospital, in which a large part of the dura mater was ossified. In the subject from which this specimen was obtained, there were no head symptoms whatever during life.

Dr. Mussey presented a post mortem specimen—a femoral aneurism. He gave the following history:

The patient was a German, 35 years of age. Four years ago he felt as though "something gave way" in his leg, and he discovered a small tumor, the size of a hazel nut. Dr. M. first saw him three years ago; he had at that time a femoral aneurism of the size of a walnut. He was not again seen by the Dr. until about two months ago. The tumor had become quite large, the limb measuring over its site twenty-one inches, while the sound limb measured in same part only seventeen inches. The danger from rupture of the aneurismial sac had become so imminent that the Dr. advised an immediate operation, but, on account of business considerations, the patient would not permit any operation at the time.

The Dr. applied pressure in various ways, but not procuring satisfactory results, finally applied a plaster dressing over the entire thigh, and reaching for some distance on to the trunk, leaving only an opening over the femoral artery for the purpose of applying a tourniquet. The latter was applied just below the femoral ring; it lessened the pulsation in the tumor, and finally caused its entire cessation; but the pressure also caused disastrous effects on the skin. Notwithstanding all necessary precautions had been taken, considerable sloughing of integument occurred in the groin and just over the trochanter. This was followed by a state of considerable prostration, tympanites, etc., but patient gradually improved. The limb increased considerably in size, the measurement increasing in one day from 21 to 23½ inches.

On the 4th inst. the patient was operated upon. The tumor extended so high that it was found necessary to tie the external iliac. The vessel was ligatured after the method of Abernethy's modified operation. It was performed with little difficulty, the epigastric was divided, but immediately ligatured, and there was not more than ½ oz. of blood lost.

On the day after the operation the patient was doing well, and the leg measured 1½ inch less in circumference. But after five or six days, tympanitis and other indicatians of prostration became manifest; he became delirious, and died yesterday.

The post mortem examination revealed a cellulitis but no peritonitis. The sac of the aneurism was ruptured in removing it; it was filled with coagulated blood; there was no deposition of laminated fibrin.

Dr. Goode said the case reported brought up the general subject of the treatment of aneurisms. In cases not amendable to surgical treatment, treatment by low diet, and horizontal position, has been much lauded by some. Would such treatment be of value in aneurisms, which are usually operated upon? Or is such depressing treatment of questionable propriety in any case? Gross mentions a case where just the opposite method of treatment, a strong, sustaining treatment, effected a cure.

Dr. Carson said that iodide of potash had been recommended very highly in the treatment of aneurism, especially by Balfour, of Edinburgh. Ergot has also been favorably spoken of.

Dr. Mussey mentioned one case of very extensive thoracic aneurism, in which iodide of potash produced marked alleviation of symptoms. In the case mentioned above it had been tried, but to no effect.

Society met Jan. 23d, Dr. Comegys presiding.

Dr. McReynolds reported a case of diabetes mellitus, with nervous complications. He just saw the case the latter part of last summer. He had been under treatment for diabetes mellitus for two years. A few weeks after he first saw him the patient was seized with an epileptic convulsion. These convulsions have recurred every week or two since. Three weeks ago the convulsion was followed by hemiplegia. Albumen has been found in the urine, and since the paralysis, the quantity of sugar appears to have diminished.

Dr. Stanton said that it was now generally admitted that diabetes is usually due to some disturbance on the nervous system. In the case reported, the diabetes and nervous phenomena may both be due to the same pathological condition.

The Dr. then gave the history of a case of partial placenta prævia, in which there was considerable bleeding in the beginning of labor, but, after the rupture of the membranes, everything proceeded favorably, nature accomplishing her work safely without assistance.

Dr. Comegys mentioned a similar case occurring in his practice several years ago. There had been a very alarming hemorrhage, but before he could interfere, the head descended and stopped the bleeding, and nature accomplished a safe delivery.

A second more serious case was then mentioned, one of central placenta prævia. There had been occasional bleeding, the trouble was anticipated, and the Dr. instructed his patient to send for him immediately when labor had begun. He saw the patient early in labor; there had already been considerable loss of blood, and the os was dilated to the size of a silver quarter. He introduced a tampon, but bleeding continued. He then introduced his head into the uterus, first detaching one side of the placenta, and seizing the feet, soon terminated labor. The child was dead, the woman was almost pulseless. She lost so much blood that there was no secretion of milk afterwards.

Dr. Taylor said an important consideration in cases of placenta prævia was, whether we should induce labor prematurely. Of course there is the probability of the repeated hemorrhages, and a serious or fatal bleeding may occur at any time. It is urged, when labor is induced, the physician is always at hand to guard, as far as may be, against serious accidents.

Several years ago he was called in consultation to see a woman in the seventh month of pregnancy, in whom several bleedings had occurred, a moderate one on the night before he saw her. When he saw her, at 7.30 A. M., the bleeding had ceased, she was apparently doing well, and he thought best to let her alone. She was seen several times during the day and again at midnight, but there was still no hemorrhage. At 2 A. M., there was a large gush of blood. When Dr. T. saw her (other physicians had seen her in the meantime) she was pulseless, and it was thought best to first try to resuscitate her with stimulants. She was delivered by podalic version at 5 A. M., but died at 7 A. M. This case would favor the plan of inducing labor prematurely.

Last spring he was called in consultation to another case. The lady had had several discharges of blood, and there was undoubtedly a placental presentation. But when in labor, the os dilated very rapidly, there was a breech presentation, and she was speedily delivered without any untoward symptom. This is a case on the other side.

Of the recent authorities, Judell and Sprigelbreg advise us to wait, Playfair recommends the inducture of labor.

At the time of labor, the plan of treatment now concurred in by all authorities, is to use some kind of tampon or compressor until the os is sufficiently dilated to turn. Our modern methods of bimanual version diminishes the danger, for it enables us to operate earlier than by the old method.

There is a tendency to abandon Simpson's method of entire detachment of the placenta, also Barnes' method of partial detachment. The plan of detaching the placenta on one side, where it covers the smallest surface, and then rupturing the membranes, is becoming more firmly established with the profession.

Dr. Comegys asked the speaker what he thought of compression of the abdominal aorta in cases of uterine hemorrhage, especially post partem hemorrhages. Dr. T. said he doubted its value, as it caused venous congestion at the same time that it diminishes the amount of blood in the arteries. He had only seen it tried in one case. There was an excessive post partem hemorrhage, coming on about two hours after delivery without any apparent cause. Dr. T. was called in consultation, but before he saw the patient the bleeding had been already controlled by compression of the aorta. But in this case the ordinary measures were used, in addition, ice, ergot, etc. The woman was completely exhausted by the hemorrhage, had become pulseless, semi-conscious, etc., and it was two weeks before she was allowed to have her head at all elevated.

Dr. Thomas said that he had seen compression of the aorta resorted to in two cases of amputation at the hip, and in these cases it proved to be of great value. Esmarck's bandage was first applied to the legs. There appeared to be no special prominence of the veins as a result of aortic compression. In one case well marked peritonitis followed, but the case finally recovered.

Dr. Comegys said that he had met about half a dozen cases in which he felt that the only resource to save a patients life was compression of the aorta. His attention was first called to this method of treatment by the publications of Chailly, twenty-five years ago. The Dr. then mentioned several cases in which he resorted to this procedure. He had never seen any peritoneal trouble following, though the pressure often caused the greatest distress, especially in the lower extremities, which was attributed to the ænemia superinduced by the arterial compression. He has not observed any swelling of the veins of the legs as a result of the pressure.

Dr. Carson said he saw one of the cases in which the last speaker had tried aortic compression. But, as in this case it was found necessary to resort to further measures, hypodermic injections, ergotine, electricity etc., he hardly thought the above measure accomplished what was claimed for it.

Dr. Comegys said that the aortic compression had already controlled a hemorrhage, which threatened to be fatal, before Dr. Carson saw the patient; and while it was found necessary to resort to these other measures to produce uterine contractions, yet, as the other temporarily checked a dangerous bleeding, he thought he could justly attribute to it a saving power.

Dr. Zenner reported the following case. Twelve days ago was called to see a woman who had aborted on the previous night. She had been suffering with uterine pains and hemorrhages for five days. The fœtus, which escaped, was apparently of the third month. She did not know whether or not she had passed the after-birth. On examination, the cervix was found to be closed. Since then the patient has suffered more or less with uterine hemorrhages and pain. A few days after first seen, she passed several large clots about half the size of a fist; sometimes a day or two passes without any bleeding or pain. She is a weakly woman, and has been somewhat prostrated by the hemorrhages, but at present her appetite is good, has no fever, no fetid odor in discharges, pulse about 100. The treatment has been ergot or gallic acid internally, with directions to attendant to introduce ice into the vagina whenever there is much bleeding. In the beginning the Dr. hesitated to interfere, because uncertain whether there was anything within the uterus, but the continued hemorrhage renders it extremely probable that the after-birth, either partial or entire, still remains. The question he wishes to put to members is, whether they considered an exploration of the uterus advisable.

Dr. Kemper said that there was probably a retained placenta in this case and the woman was liable at any time to a dangerous hemorrhage. Therefore the uterus should be explored with the finger and contents removed. He thought the most advanced ideas on the subject were, that when it was supposed that anything was left within the uterus it should be removed immediately. Sometimes it is very difficult to get the finger into the uterus, but as a rule, as long as anything remains in its cavity the cervix is patulous.

Dr. Taylor said he agreed with Dr. K. as to the proper course of treatment in the case reported. He thinks the uterus ought to be exposed and its contents removed. Yet he can scarcely agree to the bold measures recommended by Barnes in his recent work, to remove the contents of the uterus, in such cases, at all hazards. He referred to a case occurring a few years ago in the practice of an eminent physician, where a fatal termination occurred, probably through the efforts to remove the after-birth.

He was called in consultation to see a case where it was supposed the entire placenta had escaped, but there was a quick pulse and an offensive odor. He introduced his finger into the uterus, and removed from the fundus the remains of the placenta. As to the manner of arresting uterine hemorrhages, which had been spoken of by a previous speaker, it could be accomplished in two ways, first, by causing a thrombosis in the vessels; second, a contraction of the uterine fibres, thus closing the mouth of the vessels. The first was the method employed in cases of aortic compression, but when the pressure is removed there is danger of a return of the hemorrhage. In such cases stiptics come into play. Recently, tincture of iodine has been proposed as a substitute for the per-sulphate of iron, as a uterine styptic. He had tried it in one case successfully, using an injection of 1 oz. of tinc. iodine, and 1 oz. of water.

Dr. Kearney said that he had often listened with a good deal of surprise to an account of the good effects of styptics, as styptics in such cases; for he cannot understand how they can produce thrombosis in the vessels themselves. We must remember that the injected stream must encounter the outflowing blood, as well as the clots accumulating around the injecting instrument; how then can it reach, in this active state, the vessels themselves? Besides, it is well-known that the direct application of a styptic to the external surface does not very readily control bleeding. The speaker has himself encountered this trouble in the application of the dry powder of the sulphate of iron to the bleeding surface of bones, after amputation.

But he can readily understand how the same agents, acting as irritants, may control uterine hemorrhage, just as the hand within the uterus may cause contraction of its muscular fibres, and thus close the mouths of the bleeding vessels.

Society met Jan. 30th, 1877.

Dr. Carson presented post mortem specimens from a case dying at the Cincinnati Hospital, of which he read the following history:

Pat Doyle, admitted Jan. 20th, æt. 28, Ireland, S., Laborer. Father dead, cause unknown; mother living and healthy; is a temperate man; has always been healthy with the exception of an attack of ague three years ago. Present trouble commenced three months ago with a simple diarrhœa, having about 15 passages in 24 hours. Remained in same condition until two weeks ago, when he began to have pains, straining with each operation. One week ago noticed that he was passing some blood. In each of the last five days has been having chills, one at noon, and one at midnight. Has lost considerable flesh.

Condition on admission: Body fairly nourished; tongue large, flabby, thickly coated; appetite poor; bowels very loose; pulse, 112, res., 28; temp., 102°.

21st—M., pulse 112, res., 24, temp. 101°. Ordered emulsion of terebinth, containing ol. t. gtt. x, and tr. opii. gtt. x to each dose, every three hours.

22nd.—Pulse 120, res. 24, temp. 100°. Moist rales heard posteriorly over both lungs, more marked on right side; seven stools last night. Ordered milk, beef essence, etc. P. M., pulse 120, res. 28, temp. 103°.

23d—A. M., pulse 112, res. 20, temp. 98½°. Had eight stools last night, very dark in color and exceedingly offensive, some trouble in passing urine. Stop emulsion, and ord. bismuth, grs. xx. and pulv. opii. gr. i, every two hours, and injections of starch and tr. opii. P. M., pulse 120, res. 24, temp. 102°. Had twelve stools to-day, tongue thick, dry, and coated.

24th—A. M., pulse 120, res. 20, temp. 101.3°. Had twelve stools to-day.

25th.—Pulse 120, temp. 100.2°; six stools last night. Stopped bismuth and opium, and gave a pill of tannin, gr. ij., pulv. opii., gr. j., every two hours. P. M., pulse 128, temp. 102°. Seven stools to-day, very thirsty, drinks large quantities of milk.

26th.—A. M., pulse 108, temp. 99°, condition about the same. P. M., pulse 120, res. 24, temp. 102°.

27th.—A. M., pulse 120, temp. 98.2°. Abdomen distended and tympanitic. P. M., pulse 140, res. 32, temp. 102.2°. Face and body bathed in cold perspiration, feels very weak. Ordered brandy ʒi., every hour. Died 10.15, P. M.

Autopsy 36 hours after death: Body emaciated, spleen slightly enlarged. Cortical substance of kidneys clouded, medullary substance congested. Peritoneum contained a few ounces of semi-fluid fecal matter and gas. A perforation, large enough to admit two fingers, was found in the commencement of the ascending portion of the colon. Peyers Patches were slightly swollen. The large intestines were the seat of a large number of ulcers, appearing from the size of a split pea to that of a silver dollar; the centers of these ulcers in many places, covered by a slough bordered by a sharp line of demarcation around the edges, were swollen, hyperemia, and the seat of abundant purulent infiltration. Liver weighed 6½ lbs., vertical measurement principally increased; and upon the surface, upon section, areas of various sizes in which the liver was shrunken, and the whole patch below the general level of a dark brownish red color. Most of these areas were found close to the surface of the liver, and of a pyramidal shape. Toward the center, other areas of a spherical shape were found; in the center of three or four of these areas purulent infiltration, and breaking down of tissue to form a small abscess, had occurred. Several branches of the portal vein, distributed to the affected regions, were found to contain discolored friable thrombi in places adherent to the walls of the vessels. The Dr. remarked that an interesting feature in the history of this case was the range of temperature. It was not the temp. of typhoid fever, but rather of a septicemic trouble.

Dr. Comegys remarked that the fever was evidently from septic infection, the result of the absorbtion of septic material from the ulcerated surfaces. Great fluctuations of temperature, sometimes rising very high, again falling below normal, are always due, according to his observations, to either septicemia or albumenuria.

A practical question just here is, whether we can save cases of extensive ulceration of the bowels, indicated by protracted and obstinate diarrhœa. Where the ulceration is tubercular, of course the case is hopeless. But in other cases he thinks we can often cure the disease. If the ulceration is confined to the rectum he has succeeded in curing the case by injections of astringent solutions. But such measures would be of no benefit where the disease extends high up in the colon. In the latter cases he has often procured marked beneficial results, even entire recovery, by the internal administration of bichloride of mercury, gr. one-twentieth—one-sixteenth three or four times daily. There may be at the same time demand for other remedies, such as cod-liver oil, tincture of iron, alcoholic beverages. Meat extracts are always in demand.

Dr. McKenzie said that we meet with two different types of dysentery. In one there are marked local symptoms, tenesmus etc., and little if any constitutional disturbance; in the other there is considerable fever. This fever we may attribute to zymotic influence rather than to the local inflammation, and such, perhaps, was the fever in the case reported this evening.

Dr. Carson thought it more philosophical to attribute the fever in this case to the effects of local disease than to zymotic origin, as the man had been living in a healthy locality. But an interesting question in this case is whether the septic infection was caused simply by the ulceration within the intestines. He is inclined to believe so. Has seen two cases of cholera morbus, in previously healthy persons, in whom pyemia developed from the effects of these attacks. These patients were living in healthy localities. Mentioned a pamphlet on the subject of intestinal septicæmia, where cases were given having such an organ.

Dr. Comegys said that in the discussion of fever before this society held some time ago, the idea of septic absorption as its cause had been brought out. He believed that fever was never a spontaneity. There is always some morbific influence exciting it.

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Notices.

ERRATA.—On page 447, line 12 from the top, omit the word "other." On page 448, line 16 from the top, for "dust" read *dual*, and the same sentence should conclude "not a *nisus consecutions* but the *nisus formations* of organization."

KENTUCKY INFIRMARY FOR WOMEN AND CHILDREN.—At a meeting of the Board of Regents, Kentucky Infirmary for Women and Children, held May 15, 1877, the following persons were elected to serve for the ensueing year:

Board of Lady Visitors.—Mrs. S. J. Look, President; Mrs. John M. Harlan, Vice President; Mrs. J. Jones, Secretary and Treasurer; Mrs. Geo. W. Griffiths, Miss H. Quigley, Miss M. Lafon, Mrs. Gertrude Avery, Mrs. Wm. A. Warner, Mrs. Bettie Finley, Mrs. S. W. Wilson, Mrs. A. A. Wheeler, Mrs. C. A. Lehman, Mrs. B. F. Avery, Mrs. K. W. Smith, Miss Alice Short, Mrs. Patrick Pope, Mrs. T. G. Alexander, Mrs. Eva Beach, Miss Sophia Fischer, Mrs. Lawrence Richardson, Mrs. Grandison Spratt, Mrs. T. P. White, Mrs. Wood, Mrs. Samuel Brandeis, Mrs. Fink, Mrs. Andrew Cowan, Mrs. J. F. Atwood, Mrs. S. C. Haggin, Mrs. Louisa Summers.

Medical Staff.—Dr. David Cummins—Deformities and general surgery; Dr. Geo. W. Griffiths—Diseases peculiar to women and children; Dr. Richard C. Brandeis, Diseases of eye, ear and throat; Dr. Ely McClellan—Pelvic surgery; Dr. Samuel Brandeis—Surgeon accoucheur; Dr. James McEvoy—Clinical assistant.

Dental Staff.—B. Oscar, D. D. S.; W. T. Redman, D. D. S., M. D.; Ch. E. Dunn, D. D. S.; W. T. Goddard, D. D. S.; C. G. Edwards, D. D. S.

Additional Honorary Members of Board of Regents.—Prof. W. H. Byford, Chicago, Ill.; Dr. Washington Atlee, Philadelphia, Pa.; Dr. J. Marion Sims, New York.

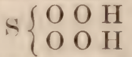
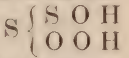
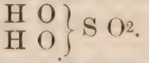
The Board of Regents, in re-electing on the medical staff the gentlemen named above, feel it to be a pleasure and a duty to state that the record of their attendance, which is daily kept, shows that they have been conscientiously punctual to their appointments during the whole year, and have administered relief to a very large number of afflicted women and children, who but for them would have continued to suffer. The Board also takes pleasure in referring to the faithfulness of the lady visitors, who have at great expense of time and strength visited the infirmary daily, managing the domestic arrangements, and caring for the well-being of the patients.

BEN. F. AVERY, President.
J. JONES, Secretary.

THE FIRST ANNUAL MEETING of the American Dermatological Association will be held at Niagara Falls on the fourth day of September next. Note: The titles of all papers to be read at any annual session shall be forwarded to the secretary, not later than one month before the first day of the session.

Officers:—James C. White, M. D., President; Louis A. Duhring, M. D., Rob't. W. Taylor, M. D., Vice-Presidents; L. Duncan Bulkley, M. D., Secretary; Jas. Nevins Hyde, M. D., Treasurer.

Principles of Theoretical Chemistry; with special reference to the constitution of chemical compounds. By Ira Remsen, M. D., Ph. D., Professor of Chemistry in the Johns Hopkin's University. Philadelphia: Henry C. Lea, 1877, pp. 232.

The title of this work fully indicates its scope. The *theories* of chemistry however, true or false, have unquestionably been exceedingly fruitful of positive discoveries. On this ground alone chemical theory deserves to be generally studied. The author has treated the subject in a clear, concise and progressive manner, without committing himself rashly either for or against doubtful points. We do not understand, however, why the author has not observed a more uniform notation. Nitric-acid is sometimes $(HO)NO^2$, while at other times it is NO_2-OH or HNO_3, without any expressed or apparent reason. In the same manner we have for sulphuric acid an alternative between  $S\begin{cases} OOH \\ OOH \end{cases}$ and  $S\begin{cases} SOH \\ OOH \end{cases}$ neither one of which probably expresses the real constitution, as the author elsewhere seems to admit by using the more probable expression,  $\left.\begin{matrix} HO \\ HO \end{matrix}\right\} SO^2$. In the notation of compounds it has become customary in general, to place the symbols of the more electro-positive elements or radicals on the left of the negative ones. The custom is a very convenient one and ought to become as nearly universal as possible. Referring again to the molecule of sulphuric acid, it is a question of fact whether S is united directly to two or to four atoms of O, and it is just such questions as these that rational formulæ are intended to answer. As the author truly says in his preface, "Take the formulas for what they are, and they have considerable value." "A careful study of this book will, it is believed, be of assistance in showing exactly upon what basis our conceptions of chemical constitution rest." J. B. H.

The Cure of Rupture; reducible and irreducible, also of varicocele and hydrocele, by new methods. By George Heaton, M. D., member of the Mass. Med. Society; Fellow of the Royal Chiurgical Society of London, etc. Arranged and edited by J. Henry Davenport, A. M., M. D., Harv. Boston: H. O. Houghton, & Co. For sale by Geo. E. Stevens & Co.

Hernia is recognized as one of the most common infirmities, and relief from it being exceedingly important to the welfare and comfort of those who are thus afflicted. Surgeons necessarily devote much of their time and attention to devising methods for its temporary or permanent cure. The author of this little monograph, having had large and valuable experience in the treatment of the various forms of hernia, advocates "a mild irritation of those portions of fibrous tissue lying directly in contact with the exterior of the neck of the hernial sac, thickening and consolidating their substance, and effecting a contraction of the openings."

He induces this mild irritation by means of an instrument similar to the ordinary hypodermic syringe, which is filled with an irritating fluid, and injected in the inguinal canal, but outside of the sac. The method of operating is very minutely described, as also the after-treatment. One-third of the book is taken up with clinical reports of cases operated on. The author says that in his experience of over thirty years, he has not had a fatal result from an operation, nor met with after-symptoms that caused him much apprehension, nor was he led to think otherwise than that the operation for the reduction of irreducible hernia by surgical means is safe, trustworthy and efficient.

Transactions of the Colorado State Medical Society—Denver, 1876.

The opening address of Dr. Dodge, of Boulder, forms an appropriate prelude to the transactions. Dodge, of Boulder, is inclined to be practical, imaginative, and humorous, as the following abstract will show:

"It would be interesting to see the leaders of the profession of a century ago, filing into our hospital wards, and observing the changes wrought in the system of medical and surgical practice. Imagine the venerable gentlemen, in their quaint dress and powdered wigs, gazing with wonder and delight upon the vast array of pharmaceutical preparations, shorn of much of their nauseous taste, and objectionable bulk. What are their thoughts as they see the modern physician applying the thermometer and basing his treatment and prognosis on its revelations? Though they knew of electricity in their day, they had not thought of applying it to disease; yet are ready to acknowledge its potency, as they see the palsied limbs respond to its currents.

The patient, whom they see writhing in agony, is soothed and quieted by the use of the hypodermic syringe, and they admit that the means of controling pain has been vastly improved since they left the field of action. They pass into the amphitheater and see a poor creature about to suffer the loss of a limb. Their wonder knows no bounds, as he inhales a subtle fluid, and passes quietly into dreamland; but this is not all, an elastic band is passed around the member in a peculiar way, and it is removed without the patient's consciousness, or the loss of blood. They passed from earth before the days of anæsthesia and Esmark's bandage. The operation for the removal of ovarian and uterine tumors is to their minds little short of criminal; but the climax is reached when they see the surgeon plunge the needle of the aspirator into the pericardium and remove the effused fluid. They have seen enough; they shuffle back to the other shore, ready to testify that it was but little before their day that men and women suffered martyrdom for deeds that had less of witchery in them."

No doubt it would be interesting to see the "leaders of the profession of a century ago filing into a hospital ward." But it would be doubly interesting to see the look of bewilderment depicted on their shadowy focus as they filed out again for their golden home beyond the tide. We are inclined to think that they would not admire thermometry, electricity, the hypodermic syringe, anæsthesia, Esmarch's bandages, aspirators, etc. They would find that scarlet fever, erysipelas, measles, and malarial fevers were about as common as before they went to the spirit land, notwithstanding the use of the thermometer; they would find paralysis probably a little more common, notwithstanding electricity. They would find as much pain and suffering as there was a hundred years ago, notwithstanding anæsthesia; they would find more limbs amputated, notwithstanding Esmarch's bandage; they would find just about as much pleurisy and pericarditis, notwithstanding the use of the aspirator; and finally they would find just as many, if not more people dying than a century ago. We have no doubt that when these practitioners of the past "shuffle back to the other shore ready to testify," that their testimony would be, that while the means for the diagnosis of disease are more accurate than in their day, the results of treatment will not vary much, and that medicine so far, notwithstanding all its boasts of progress, has not been able to conquer death. Perhaps, if Dodge of Boulder, returns from the spirit land in one hundred years from now and gently meanders through the hospital wards of the future, he may see, in his turn, the great progress science has made during his spiritual absence; but we are inclined to think that he would still believe in the infallibility of the thermometers, batteries, anæsthesias and aspirators of his youthful days. The report of Dr. Lemen, on "Pulmonary Consumption" is very interesting and valuable. The same may be said of Dr. Dennison's paper on the "Climatology of Colorado." Taking it all in all, these transactions are a very considerable contribution. T. C. M.

Atlas of Skin Diseases. Parts 8 and 9. By Tilbury Fox, M. D., F. C. P., etc. Philadelphia: Lindsay and Blakiston. For Sale by Robert Clarke & Co. Each part, $2.00.

Part eight contains a series of very fine colored illustrations of Pemphigus Vulgaris, Pemphigus Pruriginosis, Pemphigus Foliaceus; Ecthyma Acutum, Ecthyma Vulgare, Ecthyma Cachecticum and Ecthyma Luridum. Part nine illustrates the different varieties of Psoriasis.

The illustrations are excellent, and are accompanied in each instance by a brief descriptive text, with notes of treatment.

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THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

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Original Communications.

Article 1.—What Medicine offers for the Relief of Common Drunkeness.—A Clinical Report and Study of it.

BY Z. COLLINS MCELROY, M. D., Zanesville, Ohio.

Physician to the City Infirmary; Fellow of the Zanesville Academy of Medicine; Sec. Muskingum County Medical Society; Hon. Fellow Meigs and Mason Academy of Medicine; Member of Perry County Medical Society; Member of Licking County Medical Society, etc.

Reported to the Hocking Valley Medical Association at its Session in the City of Lancaster, O., April 3d, 1877; and published in compliance with a resolution of the Association.

The age presents no more important problem for solution than how to abridge the use and abuse, and lessen the evils resulting from alcoholic drinks. There is a large minority sentiment steadily resisting its encroachments, with few results to reward their persistent work. Spasmodic efforts are made from time to time of much larger proportions, and with apparently satisfactory present results. But, somehow or other, these apparent good results soon disappear. The money interest in the traffic is too strong to be kept long at bay by moral considerations. The local governments of cities and towns is, in our day at least, in the hands of those interested in the traffic and use of liquors.

As a man of science I need not dwell a moment on the personal and social results of strong drink. And it is hardly worth while to insult your intelligence, and consume your time in writing up the genesis and geneology of the pathological changes of structure in dipsomaniacs. The question which more immediately concerns us, as physicians, is, what has medicine to offer for the relief of chronic drunkenness? The only direct and truthful reply is, nothing. Perhaps the most frequent suggestion is "multiply asylums for the treatment of chronic alcoholism." And if asylums were largely successful, perhaps the question would be satisfactorily solved.

But are asylums successful? So far as my knowlege goes, they are unsuccessful in too large a proportion of cases to justify society in multiplying their members. For, it seems to me, they simply hold the propensity to drink in check, and do not remove the conditions of structure on which the demand for drink depends, to be otherwise than mainly unsuccessful.

Not long since I came in contact with a lady, who had, at a considerable expense, kept an erring son at an inebriate asylum one year; who was dismissed, "cured," in the report of the superintendent, who went straight to a saloon, and got drunk, and in that condition returned to his mother's residence! Now, I have a gate on my premises which is held shut by a weight, which has hung there these many years. Let the gate be opened ever so many times a day, or not at all for weeks, or months, the weight is ever ready and prompt to close it again, unless there is some obstruction in the way of superior force.

That it seems to me explains what asylums do. The inebriate has a propensity for drink. Asylums interpose a force against his gratifying this propensity, but do not remove the conditions of structure on which appetite depends. When set at liberty the appetite is gratified at the earliest possible moment.

I confess that until recently my own judgment was in favor of treating the inebriate as a man of unsound mind in asylums; subjecting him to the recognized treatment for insanity, or unsoundmindedness, if I may coin so unmanageable a word. But certain events running through ten years, and culminating in my watching the treatment of an almost hopeless case of chronic drunkenness, has brought me to a different conclusion.

That you may have the whole case before you, permit me to briefly state the circumstances which led to the treatment of the case I am about to report under my direct observation.

Nearly ten years since I published an elaborate study of "How do medicines produce their effects?" read as a valedictory address to the Muskingum County Medical Society; and a year later another on "Alcohol viewed by the eye of science as a therapeutic agent" and both published in St. Louis Medical Journals; the first in the St. Louis Medical Reporter, and the latter in the Medical Archives. I received a good many letters in regard to both at that time, and among them, some from Dr. S. E. McKinley, then a resident of St. Louis, thanking me in the most complimentary manner for the matter of both, particularly the first, as it had enabled him to see through the treatment of chronic drunkenness. He opened a small private hospital, receiving patients in all stages of chronic inebriation, and dismissing them in ten days, or less, with no appetite whatever for liquor. He gave me in letters, details of the daily treatment and results. In a year or two he removed to Chicago, occasional letters passing between us. After the great fire in Chicago I lost sight of him till the latter part of July, 1876, when I received a letter from him dated in Edinburgh, Scotland, where he had been called to treat some persons among the upper classes of Scottish society. He had been honored by a joint meeting of the Royal Colleges of Physicians, and of Surgeons, at which he explained his mode of treatment. He was the first American physician who had ever spoken in their new hall. He returned to his residence, in Philadelphia, and entertained some of the Scottish delegates to the late International Medical Congress during its sessions in that city.

I visited the Centennial Exposition near its close, and called to see him, fortunately finding him at home. My call was very short, and as he thought, far too short, for, on returning to my office on the evening of Friday, 8th, Dec. last, I found his address on my table. I brought him from the hotel where he had stopped, and made him my guest during his stay in our city. The next evening after his arrival I called the members of the Muskingum County Medical Society together, at my residence, to whom he explained his mode of treatment, and proposed to remain and treat a case for any member of the society, to illustrate it.

A friend in whom I was much interested, badly needed his services; but just how to get at the patient was quite a riddle. Folks of that kind are generally very touchy and sensitive, and very easily offended. So I kept quiet, hoping that some member of his family would move in the matter. But they did not do so. So, on Sabbath evening, I broached the matter myself. It was quickly and satisfactorily arranged, and the patient passed under professional management that night.

Mr. P. B. A., æt. 57; lawyer, married. Family all grown up, except one. Has been a drinker for forty years. Has sacrificed everything usually held dear, to his appetite for strong drink. Home, property, and business, or professional reputation, and health, all gone. He is bloated with abdominal dropsy, measuring eight inches more than his usual girth round the abdomen. Was in fact in the pathological stage of shrinkage, which sooner or later overtakes the victims of intemperance. He was under my professional management, but not improving to any considerable extent.

Sabbath eve., Dec. 10, 1876. Weather extremely inclement. Mr. A. has had to go out several times to-day to get his scanty supply of whiskey, as it now has to be obtained by stratagem, chance, or wit. On inquiring of him how much he had drank during the day, he replied not more than half a pint. Appetite very poor, very thin in flesh, though proud spirited and haughty.

Dr. McKinley requested the family to get him a pint of whisky, and told him to take all he desired during the night. No medicine. Pulse 90°, very feeble; temperature not taken. Though early in the evening, Dr. McKinley followed him to his bed-room, had him take off his clothing, and go to bed; sending his clothing out of the room to another part of the house, and requested him not to get up at all, only to attend to natural calls until he allowed him to do so; and forbid his family bringing him his clothing in case he asked for it. He has not been sleeping good lately.

Dec. 11th, morning.—Dr. M., and myself found Mr. A. in bed, and well pleased, had slept better than for several weeks past. Pint of whiskey about gone. Mr. A., was to remain in bed, and have another pint of whisky to-day, and drink all he wanted. He was to have had a mush and milk breakfast, but it was forgotten, and he had drank some coffee, and eaten some ham and bread. Was to have mush and milk the remainder of the day for diet.

Evening.—We found patient in bed, and feeling better; thinks this kind of treatment splendid. Patient was to have pint of whiskey during the night, or so much as he wanted. Just before leaving Dr. McKinley dropped on the patient's tongue, dry, what he said was a drachm of Howard's Hydro-sublimate of Mercury, simply pure calomel. It was mixed with a little powdered licorice root, and washed down with a tumbler of whisky, the patient always preferring whiskey straight. Patient asked for some water, however, after the whiskey, and had it. Dr. McKinley now placed patient in bed in the position he was usually most comfortable, and requested him not to change, only as he was obliged, during the night. He seems in a very good humor and enters heartily into the treatment. Pulse very feeble, and eats but little.

Dec. 12, morning. Patient has had three copious discharges from bowels during the night. Says he feels very comfortable; skin soft and moist, pulse exceptionally good, about 100°, temperature not taken. Dr. McKinley had visited patient at 6 o'clock this morning, and stated that he had dropped on his tongue a drachm of Squibb's powdered ipecac, mixed with licorice, same as the calomel, washed down this time with a tumbler of whiskey and water. He was to have all the whiskey he wanted to-day and mush and milk diet. Continues to have soft, mushy, ill-smelling discharges from bowels.

Evening.—Found Mr. A. with soft, compressible and easily obliterated pulse. Has had four more operations from bowels, three large, one small. Has had only some soup for food. Dr. M. gave him two scruples powdered ipecac in the same way as he has given all other medicines.

About 11 o'clock, P. M., a messenger came for Dr. McKinley and myself to visit Mr. A. He was desperately sick at stomach, and thought he was dying. Dr. M. declined to see him, and advised me not to go either, as the sick stomach was to be expected. Sent request by messenger for Mr. A. to take more whiskey. Heard nothing more from him during the night.

Dec. 13, morning.—A messenger came early to say that Mr. A. wanted to see me alone, and before Dr. M. visited him. On reflection, concluded I would wait till after breakfast, and go with Dr. M. Found Mr. A. very sick at stomach. While we were there he threw up considerable dark billious matter, as we doctors call it.

When alone, I said to patient, all was going on safely, that he was not in immediate danger of death; and thought it better not to interfere with Dr. M., but let him have his own way. I said to him further that I was a much interested spectator, and intended to interfere if necessary, at the proper time, if I thought his life in danger.

Dr. McKinley gave no medicine this morning, but pressed more whiskey on the patient. Pulse exceptionally good, notwithstanding the vomiting. The patient thought about 10 o'clock in the forenoon, that either Dr. M., or his family had put something in the whiskey he was drinking that made him sick. Though assured to the contrary, he did not believe it. To satisfy him a note was sent to his son-in-law, requesting him to get a quart of the very best whiskey, and deliver it to the patient with his own hands. It did not get there till afternoon, but he never tasted it. About one o'clock he requested his wife to remove all liquor out of his bedroom, as he had got turned against it. And he has never tasted it since. Since his recovery he says, to use his own language, he lost his taste for it in a twinkling. He sees it now, sees people use it, but has not the slightest desire for it. Whereas before, the sight of a bbl. on a dray, or truck, would send a thrill through him.

Evening.—Found Mr. A. at 8 o'clock in good humor and spirits. After his stomach settled, he ate some hot milk and cracker. Has no sick stomach now. Pulse exceptionally good, color improving, capillary circulation of surface active, no pallor. Dr. M. gave the patient 25 grains chloral, in comp. spts. lavender.

December 14th, morning.—Mr. A. had about eight hours sleep last night, two naps, from nine to four, and one hour from five to six o'clock. His bowels continue to move, and discharges continue very offensive. Kidneys fairly active, swelling of abdomen about the same, though there is evidently more gas, and less water than heretofore. Dr. M. commenced at 6 o'clock A. M., dropping grain doses of ipecac on his tongue, each hour, and remained with patient till noon, and did not give him any food, and though slightly nauseated all the time, did not throw up. He gave the last dose of ipecac at noon, and requested his family to give him hot milk and cracker when his stomach would receive it.

Evening.—Patient improving; pulse good, bowels have moved several times. No medicine. Dr. M. said he must be put on his own resources in regard to sleep as soon as possible.

December 15, morning.—Mr. A. is very comfortable this morning. Has slept about six hours, and has had four motions from bowels during the night. His tongue, heretofore red and glazed, is losing its bright tint, and is covering over with dark fur. Is having hourly grain doses of ipecac, same as yesterday. No food.

Evening.—Find patient very comfortable. Pulse 90, fair force and volume. Has taken some hot milk and cracker this afternoon. Is losing flesh rapidly, though his color is good. No medicine.

December 16th, morning.—Mr. A. takes hourly doses of ipecac, with one grain calomel in each of the first three doses in the forenoon. I did not see him till nearly noon. Has had two large motions from bowels. Did not want any food, though allowed to eat if he could. Pulse 90, fairly good.

Evening.—Find patient lying in the bed with his clothes on for the first time since he went to bed, Sabbath night. Had eaten some hash, made by boiling beef and tearing it into shreds with the fingers. No medicine to-night.

December 17th, morning.—It was near noon when I saw patient. Found him dressed and down stairs, and as it was near dinner time, was looking after food. Has a fairly good complexion, the circulation a little sluggish on the surface. Pulse 80, fair volume and force. Has no pain or discomforts of any kind, and does not complain of being weak. His abdominal dropsy all gone. Tongue as near as possible what it ought to be, though rough and cracked in the center. Commences to-day to take iodide of iron, two ounces officinal syrup, to six ounces simple syrup; to take just before eating meals, tablespoonful, and return a tablespoonful of water to the bottle after every dose, so that it shall be full all the time. When it becomes tasteless, he is to commence on common tincture of iron, two ounces iron, to six of syrup, and to take in same way as the iodide, keeping the bottle full all the time by adding water, after taking each dose.

The subsequent progress of the patient was marked by progressive loss of flesh, with increasing appetite and good color. Towards the close of January he had some important cases in court, and spoke one whole day with a vigor and clearness such as he had not manifested before in a dozen years. He was frightfully thin in flesh, and during the day he spoke so long was sweating profusely all the time.

He became deeply interested in building a house about two miles out from the center of the city, and spent many days there, walking out in the forenoon, and returning in the evening. The weather most of the time was very rough, and though the men at work on the house had fires, they could not, and did not render him comfortable. During all this time he was coughing a good deal. His bowels fairly regular, and appetite good. He was allowed anything he fancied as food, but was not to use in any way, tobacco, coffee, tea, chocolate, or any kind of liquor, or opium in any form. His throat seemed red and inflamed most of the time; and was apparently the occasion of some of the cough. Besides, owing to a fall in childhood, one side of his nose was obstructed somewhat, and was apparently the cause of his breathing more or less through his mouth. To overcome this, his attention was frequently called to his breathing, so as to induce him to make continuous efforts to use his nose more, and mouth less in breathing, at least till his cough was better. To give more stability to the tissues of his throat, I gave him gargle per chloride of iron, and some doses of Dover's powder, with only temporary relief from the cough. I noticed how keenly he scented the opium in the Dover's powder, as indeed all drunkards do. He asked for them again and again, though they had additional ipecac added to prevent his becoming fond of them. He would have become an opium debauche with very little indulgence on my part. He was anything else than prudent in going about and exposing himself. He was repeatedly warned that he was overdoing matters, but he persisted in his own way. Would occasionally try to smoke a stogy cigar, though every time he tried he would be made sick at the stomach, even to throwing up, several times. Would drink coffee occasionally, but had no desire for it, and did not taste liquor of any kind. Near the close of February Mr. A. broke down completely. Lost his appetite and strength. Lost his good, wholesome color, and he began hiccuping, and I got into trouble. My patient was going about, had no particular pain, and thought that if the hiccups were only stopped he would be well again. I could not get him or his family to understand that, of itself, the occurrence of hiccup was nothing — that its significance was as to the serious nature of the mischief going on in his body; so that several days were lost by mistakes, misunderstandings and forgettings. Mrs. A. still clung to the idea that I was mistaken in regard to their significance. She heard that fresh plums were a sure cure, and they had to be tried and fail, which they did. In the mean time he lost rapidly, and began to be very puffy about the abdomen again. But at length I got to apply blisters, and gave small doses of calomel, and chloral at night to get to sleep, and relief—temporary relief—from the constant hiccup. But the tide was eventually turned towards life and health again. At first he gained very slowly, and the cough came on and persisted, for he used the per chloride of iron again, with marked relief.

He is now gaining about two pounds per week weight; has lost his cough, appetite keen and sharp, and sleeps well, and has a splendid complexion. Has given up his country house, and now devotes his time to business. No vestige of dropsy, no pain, or much uneasiness of any kind.

It is proper to state that the details of the treatment of this case, as Dr. McKinley declares, only illustrate the principles of treatment; he hardly ever managing two cases exactly alike. He offers no theoretical explanations of the way in which the results are brought about, only that the conditions of body and stomach demanding liquor are completely removed. There is no appetite left, and therefore patients will not take liquor. They must form the habit, de novo, by tippling, which by the way, is much more easily done than for the first time.

Such is this gentleman's present condition; everything as promising as in the morning of life. He fell once, and he may fall again. Society, in the larger communities, presents many opportunities for men to form, and once they have quit, to re-form the habit of indulging in alcoholic drink. It is proverbially hard to teach old dogs new tricks. He says he has often quit before, but it was a constant struggle against appetite and inclination. Now he has no appetite, no struggle against inclination to indulgence. Yet none of his friends have full confidence that it will last through the remainder of life. The wife of an inebriate once said to me: "When my husband stops drinking, as he has done now, I feel that I am living on a volcano, which may burst into eruption at any time. I never can feel safe." I can now understand the copy I used to write at school. "Evil communications corrupt good manners."

The main agents he uses are calomel and ipecac, and thinks only Squibb's ipecac, and Howard's hydro-sublimate of mercury should be used. But they are simply agents of higher purity than those found in ordinary commerce. All other calomels, English and American, but Howard's English, contain corrosive sublimate, and that defeats his purposes and ends in the treatment of chronic inebriation. As accessory remedies he uses capsicum, chloral, and camphor; sometimes lobelia; and even tobacco injections, in violent mania potu.

In regard to final success of treatment, he says it is perfect in nine out of ten cases. And has had several die while under treatment, but whose death was in no wise hastened by treatment. Does not consider the treatment dangerous to any subject. He gives no attention to any other branch of the profession, though, as I think from personal knowledge, a very competent physician and surgeon in all departments of the art.

The case, to my mind, was one of surpassing interest. First, because of the unpromising condition of the patient. It was with me a very serious question whether he was a proper subject to be treated at all. I had grave fears that he was too far gone—he had been a drinker for 40 years,—and was in the stage of shrinkage of dipsomaniac degredation of tissue. I therefore watched the treatment very closely, intending to interfere only in case it promised to hasten the death of the patient, which, in the natural order of events, was not far distant in the future. There was about the treatment that simplicity and directness of purpose and ends, which, in its precision and results, rivalled in accuracy mechanical engineering, and filled me with admiration.

It must be borne in mind in singling out the salient features of the case, that, counting from Sabbath evening, when only more liquor than the patient had been able to obtain was prescribed, but no medicine, to Wednesday soon after noon, when he refused it, and has had no appetite for it since, though it was pressed on him with some earnestness, was just two days and three quarters, 66 hours; a very short time in which to effect such a striking change in a man who had used spirits for so long.

Another was the few medicines used. The patient did not get but five doses of medicine until the condition of his stomach demanding liquor was entirely changed!

Another feature not to be omitted was, that Dr. McKinley gave all the medicines taken by the patient himself; he did not allow either the patient, or the patient's family to do that. A very wise precaution on his part, as I have often found to my regret in general practice.

The patient himself was confined to bed, room darkened, and the utmost quietude maintained. Callers were not allowed to see him for any purpose whatever, until after the critical point was passed —to wit, the removal of the condition of structure in his body demanding drink.

The after treatment had some peculiarities in this, that the doses of the iodide and muriated tincture of iron, steadily decreased from the commencement till they became nothing.

Dr. McKinley left on Monday, having had the patient under control just one week the evening previous. I was recomended to give Mr. A. once a month, a 20 gr. dose of calomel, but the progress of the case did not permit this to be carried into effect.

The patient has evidently a new body now. Sleeps well, eats well, no pain, or uneasiness about him, and no apparent organic changes of structure, not incident to his age.

It is proper to remark, perhaps, that Dr. M. declines to give any explanation of the modus operandi of these common medicines in his hands, other than refer me to my own monograph on the subject, which gave him the clue to use them so successfully. And in regard to the doses, says, that a large experience in their use, has shown him that the large doses are necessary to success.

The results of my observation of this case, together with reports of many other cases from Dr. McKinley, leads me to conclude:

First: That medicine offers the confirmed inebriate relief from the trammels of appetite, with as much certainty as relief from any other pathological condition.

Second: That what is done by specialists in the treatment of chronic drunkenness, can, and should be done equally well by the profession at large.

Third: That reformation by the aid of medicine has a solid and real foundation in changes of structure on which appetite depends, which purely moral reformations lack, and are, therefore, less permanent.

Here I might with propriety terminate the history, and my remarks on it, of this unique case; but I should feel that my work was not as well done as it ought to be, did I do so. The facts of the case have an explanation, whether I can give it correctly or not. With only the current conceptions of physiology and pathology, in reference to life, in mind, they must stand as solitary facts, having no relation to other pathological states of the human body.

But I do not believe it to be so. What Dr. McKinley did do for Mr. A. was to get up an artificial fever process with medicines. That fever process burnt up, so to speak, almost the entire body of the patient. The new body he got, as the old one disappeared by by a fever process, differed in many important particulars from the old one, notably, in not demanding liquor, as a condition of comfortable existence. For all through the realms of nature, function is the expression or index of the structure from which it proceeds. This is an inexorable truth in animal and vegetable life, as well as in inorganic nature. If there were no changes of structure, from any causes, there could be no changes of function; and if no changes of function, how, let me ask, could there be any sickness? Pathological anatomy is simply an enumeration of the changes of structure, in once living beings by accidental causes, or design. Nothing more, nothing less.

What does alcohol do in living human bodies? Why, limit the speed of molecular waste, furnishing nothing to add to the sum of life's forces; but supplying conditions for the most economical expenditure of existing stores of force, by limiting the speed of molecular changes. The secret indulgence in alcoholic liquors has its unerring tell-tale in the bloat of the drunkard. Income greater than expenditure. With this comes changes, or modifications of structure, with corresponding modifications of function, evidenced in the habits and appetite of the drunkard, for liquors.

The agents used in the treatment of Mr. A., were all agents operating in the interest of waste of existing tissue. And they are the agents having the greatest power within the limits of safety, which are ever given or used as medicines. Agents having higher powers, are called caustics, or poisons, as concentrated acids, alkalies, etc. Those having inferior powers are but little used, because of their inefficiency.

Prof. Bartholow, of Cincinnati, in his late work on Materia Medica, classifies certain medicines, and remedial measures as, "used to promote constructive metamorphosis," and "those used to promote destructive metamorphosis," a portion of the classification I made and published ten years ago; and in the exact language I used. He now claims originality for them, though I sent him a copy of my monograph at the time of its publication! Realizing after ten years the truthfulness of my classification, I rejoice at their adoption by the profession, though I think Prof. Bartholow would have lost nothing by giving proper credit.

I think I have learned several important lessons, from watching the treatment of Mr. A.'s case. One is, how to use ipecac, and how much good may be done with it. It seems to me, with it many recent cases of insanity, or unsoundmindedness, could be prevented from becoming chronic, if properly used, much more speedily than is usually done. One large dose at bed-time, in my hands, since Mr. A.'s case was watched, has done some very desirable things for some of my patients.

The wife of the president of the Muskingum Co. Med. Soc., had been sick all last month. About the 20th of February the president invited me to see her. She was semi-delirious. Pulse 108. Temperature 101°, had not slept any for a week, though taking opium, chloral, brom. potass., etc., all the time. Ten grains of ipecac, with 5 gr. Dover's powders, added by a consulting physician, and 1 gr. calomel, late in the afternoon, gave her some considerable nausea for two or three hours, but no vomiting; but it gave her a quiet night's rest, and convalescence next day. But I need not detain you with other cases. Gentlemen, you have in ipecac an agent of wonderful power, worthy of study and experimentation. But give largely, and only at night, when all is quiet, and you will be on the right track to success.

Pardon me, if before I close, I enter my protest against continuing to call alcohol a "stimulant." So far from its "urging, or goading on," or temporarily adding something to the sum of force, available for life's purposes in living bodies, it does exactly the reverse — to wit, — limits the speed of molecular transformations. Let us, as men of science, speak of it truthfully when we speak of it at all.

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Art. 2. On aborting Variola Eruptions. *

By J. S. HALDEMANN, M. D., Zanesville, O.

In justice to myself, and I think also to the cause of medical science, I am rather impelled to make some remarks upon a few strictures that my friend Dr. Hildreth advanced, bearing upon views that I adduced upon the subject of variola, at the session of the Zanesville Academy of Medicine, Jan. 11th, 1877, viz.: That the smallpox eruption may be partially, if not wholly, aborted in its incipient stage by a proper diet and medication.

I then, in corroboration of that view, referred to a case occurring in my practice, where I succeeded in lessening the amount of eruption in the person afflicted with the disease, and prevented it altogether in the other members of the family, and that without resorting to vaccination, the ordinary mode of protection. I did not then, nor do I now, ignore the propriety of vaccination,—was then, and am still a believer in it under ordinary circumstances. The circumstances in this instance, seemed to me extraordinary, and I thought best not to practice it upon the other unprotected members, for the reason that they had been exposed to the variolus virus some two or three days, and if I vaccinated them I would be guilty of introducing into their system another disease. So that, instead of bearing up under variola alone, they would be required to endure, as best they could, both variola and vaccina. It occurred to me, considering the case in this light, that the best, speediest, and safest protection I could render them, was immediately to place them upon an antiphlogistic treatment, both as it regarded aliment and medicine. The result was very satisfactory, none took the disease.

To justify the course I pursued, I refer to the Cyclopædia of the Practice of Medicine, edited by such lights in medicine as Drs. John Forbes, Alexander Tweedie, and John Conolly, and revised by Prof. Robley Dunglinson. They say, when cow-pox is inserted during the incubative stage of the casual small-pox, while the small-pox is still latent, the vaccine vesicle for the most part does not advance, or advances unsteadily or imperfectly. There are exceptions, however, to this rule, and cow-pox and casual small-pox may sometimes be seen running their full course in the same person at the same time. In no case, however, does the cow-pox, so inserted, alter or modify the course of the small-pox. Then if this doctrine be true, why, under such circumstances vaccinate? Alimentation and medication properly administered, would then certainly be more reliable.

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* The occasion that called out the views of the paper, was a discussion upon the Small Pox Epidemic, prevailing at the time mentioned, which proved so very fatal, nearly every case dying.

More modernly, in the Cyclopædia of the Practice of Medicine, edited by Dr. H. von Ziemssen. Dr. Heinrich Curschmann expresses similar sentiments. He says, relative to vaccine lymph exerting any influence on variola in the early stage preceding the eruption, " vaccination, in the ordinary way was employed by some, and by others subcutaneously injected; and by some with good results; among whom was Furley." (Lancet, May 25, 1872). But then he says: "I must however, advise great skepticism regarding these assertions. Of the subcutaneous injections of lympth I have no experience; but that ordinary vaccination during the stages of incubation cannot stay the disease, has been proven to me by chance observations and direct experiments. On the contrary, I have seen, in cases in which vaccination was practiced after infection with variola, vaccine pustules and small-pox pustules developed side by side. It is, in my opinion, very doubtful whether vaccination can even render the course of the disease milder."

I would here remark that I advised all unprotected by vaccination, outside of the family, to attend to it immediately.

You will see from Dr. H——'s strictures that vaccination is the only thing that will abort, and he " don't believe any essential change can be made in the disease." I will here insert them, so the profession may know that I do not garble: "Dr. Hildreth said he could not agree with Dr. Haldeman's idea of aborting small-pox by medication;—thinks nothing will abort it but vaccination; don't believe any essential change can be made in the disease. The course pursued by the doctor in the colored family, spoken of by him, was considered orthodox at that time;—twenty-five years ago it was thought to be good practice, but at this date such a course would be censurable. It is the rule, and it is the physician's duty to vaccinate every body exposed."

Now, from the sentiment couched in the stricture, except that in the last sentence, I beg leave to differ. It is the rule to vaccinate, and the duty of every physician, true. But then it must not be forgotten, that there are exceptions to all rules; and it is left to the wise discrimination of the physician, when those exceptions impose themselves upon his attention; and he is reckless to the better interest of his calling if he give no heed to them.

I maintain that it was "orthodox" then twenty-five years ago, as Dr. H—— admits, and that it is "orthodox" now. And I am sure that a practice that does well, and accomplishes the end for which it was instituted, cannot with propriety be said to be "censurable."

And further, the doctrine in the stricture is not sustained by the authorities, as will be shown. And too, it must not be lost sight of, that this theory was provoked, when I objected to the Doctor's view, together with one or two other fellows of the Academy, of the use of heated remedies. This was the ancient mode of practice, which proved so very pernicious and unsuccessful; and was combatted and finally grew into disrepute, and was mainly abandoned in the days of Sydenham.

The first authority I shall refer to is Dr. Robert Thomas, of Salisbury. He believed in the possibility of preventing the copiousness of the eruption of small-pox by diet and medication. Better authority than he could not be found in any time, nor in any land; and I am sanguine the principle holds good to-day. Vaccination obtained in his day, had great encomiums bestowed upon it, for its neutralizing and prophylactic qualities. He says, when a person who has never had small-pox, is attacked with febrile symptoms after having been exposed to the infection, or in consequence of the disease prevailing epidemically, we ought immediately to advise a strict pursuance of the antiphlogistic plan, debarring him from animal food, impregnating his drink with cooling acids, keeping his body open with gentle laxatives, and above all exposing, him freely to cool air. Now comes in particularly the abortive idea. "The removing away from the system the principle that would build an immense crop of pustulations." Can there be any language more to the point than this? If I am "censurable" for my views, then Dr. Thomas is censurable for his! He further remarks, the proper treatment of the patient from the first attack of the disease, will have great influence on the form which it assumes. If he be kept in a warm room,—be loaded with bed-clothes, and gets warm drinks, the fever will be severe, and mark, the eruption copious; while by an opposite treatment the disease may be broken at the beginning. It is plainly to be seen then, that my views advanced relative to the avoidance of the heated treatment, fully taught and enforced;—unless upon a retrocession of the eruption, when they had been fully exposed upon the surface. Not however, for the purpose, at any time, to invite them there.

The second authority I shall advert to to sustain the doctrine, is Dr. George Gregory. He too gave his views, in the period when vaccination was in vogue, and since the change from the heating process in the treatment, and with an evident intention to call forth to the surface pustulations, to the antiphlogistic and abortive one. He iterates that the general principles of the treatment in small-pox were for a long time misunderstood, and means were consequently adopted which greatly increased the mortality of the disease. He says in the distinct variety very little is requisite; and the danger in confluent cases is urgent under any system of management, yet the advantages of a well regulated treatment are as obvious in small-pox as in any other disease. Now comes in the abortive idea; "during the eruptive stage the object is to moderate inflammatory excitement generally, and to lesson the quantity of eruptions." Then he tells how: "For this purpose the patient is to be freely exposed to a cool atmosphere, and the strictest antiphlogistic regimen is to be pursued."

The third authority that I invite attention to, is Dr. John Eberle. He had been professor of materia medica and botany in the Ohio Medical College, and had assumed and earned other important and honorable medical and literary titles. His opinions certainly will be entitled to great respect. And by referring to him, we are coming down, step by step, to pretty modern times. Our aim is to come down as close to the present "date" as any of our authorities will allow us. He says, there is perhaps no disease in which false theory has led to such fatal consequences in practice as small-pox. During the general prevalence of the doctrine of morbid humors, it was supposed that the variolus matter was formed by a species of fermentation in the blood, and that the more perfectly this matter was separated and cast upon the skin, the greater would be the chance of recovery. Great efforts were made accordingly to assist nature in establishing as copious a crop of pustules as possible; and under this fatal delusion, all kinds of heating medicines and external warmth were diligently applied. When we reflect on the inevitable result of this practice, so long and so universally pursued, we see in it a frightful drawback on the amount of benefit conferred by the healing art in relation to this disease, although this amount must be regarded as immense, from the introduction of inoculation and especially of vaccination. Among the moderns, Sydenham appears to have been the first who saw the fatal tendency of the heating or exciting plan of treatment in smallpox. He revived the cooling or antiphlogistic treatment of the Arabian physicians, a mode of management which is now universally acknowledged as the only practice capable of mitigating the violence and dangerous character of the malady. Mark, he says the cooling or anti-phlogistic treatment is the only one capable of mitigating the violence and dangerousness of the disease. Dr. Hildreth says: "Vaccination is the only one." How discordant the theories! Eberle further remarks: "Instead, therefore, of supporting the excitement during the eruptive fever, that the eruption may be copious, we must endeavor to moderate the febrile reaction, that the pustules may be as few as possible." Why attempt to moderate the febrile reaction, if according to the theory advanced by my friend Dr. Hildreth, the number of pustules cannot be reduced? nor "any essential change" can be effected? This authority most emphatically declares it may be done, and states how: "By an early attention to the fulfillment" of the object stated, "the disease will often pursue a mild and simple course, whilst, under the employment of exciting remedies, it would, in all probability, have assumed a confluent and highly dangerous character." This statement is very clear—there can be no mistaking of the meaning; and yet, hear a few words more from this author, confirmatory of the abortive plan: "It is upon the power which an anti-phlogistic treatment exerts in moderating the violence of the disease, or of rendering the eruption scanty, that all the advantages of inoculation depend. When an individual is inoculated, the phlogistic state or tendency of his system is diminished by purgatives, simple and cooling diet, and in plethoric persons by bleeding, in consequence of which a less copious crop of pustules ensues, and the disease in general pursues a proportionately milder course."

The fourth authority I shall refer to is Dr. Thos. Watson, another star of the first magnitude in medicine. He says, to avoid breaking the thread which connects the different parts of the main subject, I have postponed to the last what I have to say respecting the treatment of smallpox. This for a long time was conducted upon an erroneous principle and eminently disastrous. The older physicians attempted to force out, through the skin, the morbid matter existing in the blood. The eruption they considered to be the natural and only cure, and adopting the vulgar maxim, that it was better out than in, they did all they could to promote a copious eruption, by a hot regimen, by covering the patient with bedclothes, by keeping the doors and windows jealously closed, and by excluding every breath of fresh air, and sometimes by administering wine and cordials. He refers to Sydenham as being the first to adopt the cooling treatment, and hence the abortive. And states that he met with much opposition from his prejudiced cotemporaries, but ever maintained that his theory would become the prevalent one. He further states that it was subsequent to the introduction of the method of inoculation, that the cooling treatment was fairly established in the persons of the Suttons, Robert and Daniel. These men, he says, were wiser in their day than the regular physicians, and had the good sense to pursue the same plan of general management which had been so prosperous in the east, whence the practice of engrafting was originally imported. They became very successful in their inoculations. I stated, as the Fellows of the Academy will remember, that I obtained my views, and based my conduct, in the treatment in this colored family, from the principles that governed in inoculations; which required those inoculating to put the subject to be inoculated upon an anti-phlogistic diet and medicine several days before the time for inoculation. I referred to my father, who had been inoculated and received preliminary treatment, and the consequence was that but one pock was brought to the surface, and that he felt very little inconvenience from it. And I heard him relate, that he knew of instances, where the preparatory anti-phlogistic treatment was instituted, that the abortion became so total, that nowhere upon the body was there a variolus pustulation to be found, save at the puncture where the virus was deposited. With this knowledge, and my other medical researches upon this question made me then pursue the course I did.

Dr. Cullen is another and fifth authority, who advocated this theory, and adopted it from the Suttons. He declares that ninety-nine times out of every hundred, inoculation imparts a distinct small-pox, and very generally of the mildest form. Now notice the deduction that Watson makes from the foregoing statements from Cullen's and his own. He says the same principle applies to the disease when we have reason to suspect that it is impending, or have the opportunity of treating it at its commencement. The object is to prevent, if possible, a copious eruption; upon which as we have seen, the severity and peril of the disorder entirely depends. It has been thought that venesection, by its anti-phlogistic power, and, perhaps by letting out with the blood some portion of the regenerated virus, might lessen the number of forth-coming pustules. But he says, you cannot insure this effect by blood-letting. He then enumerates what may and what has insured it. Hear him: you may abate the force of the eruptive fever, and keep down, it is believed, the number of pustules, by saline purgatives so exhibited as to produce two or three loose stools every day, and by free ventilation of the surface of the body.

A sixth authority I shall refer to, is Dr. Wood. I presume it will not be considered too antiquated, and consequently obsolete! I believe it, in a great measure, as well as Dr. Watson already referred to, with other cotemporaries, marks out the course for the practitioners of medicine of to-day. He says, in few diseases has medical opinion undergone a more beneficial change than in this. Under the impression that the eruption was an effort of nature to rid the system of noxious matter, which if retained must prove fatal, it was formerly deemed important to favor instead of repressing the process. It was known that heating and stimulating measures promoted the eruption. Hence arose the practice of sedulously excluding fresh air from the sick-room, heaping up bedclothes upon the patient, giving him hot drinks, and not unfrequently administering stimulants. Now that the greatest danger in small-pox is known to arise from the copiousness of the eruption, it will be readily understood, how fatal must have been the disease under the old system of practice. Now, what does Dr. Wood mean by the old system? Evidently not the one that I advocated and practiced twenty-five years ago, and maintain now in this defense.

My friend Dr. Hildreth must know three systems! What names he would give them I do not know. I will, however, surmise that they are 1st, the old; 2nd, the medial (the one twenty-five years ago); and 3rd, the present, (the one of "this date"). I must confess, that I have, in my meager researches, only found two; the old, or heating and stimulating system of the ancients; and the modern, or Sydenham one, advocating the abortive treatment of the eruptions, by an anti-phlogistic course in diet and medicines. In confirmation of my statement of systems I will give authority. Dr. Wood says to Sydenham belongs the credit of changing the current of medical sentiment in this respect. In epitomizing the course of treatment, he says, the first duty to be performed is to moderate the amount of pustulations, to do so without impairing the strength of the patient. Second, to obviate in all stages the effects of inflammation; and third, if required to support the patient in the advanced stage.

I think I have made out my case, and cheerfully submit the matter to the intelligence of the profession. In saying this, I do not mean that it will decide in accordance; by no means. Decide as the judgment would prompt, relative to the truths enunciated.

Art. 3.—Notes on the Epidemiology of Ohio. Study of the Effects of Altitude, Temperature and Drainage on Diseases. Mortality Statistics of the State, etc.

By THOMAS C. MINOR, M. D., Cincinnati, Ohio.

Intermittent Fever.—The geographical distribution of intermittent fever in the United States is the same as that of remittent fever. The remarks previously made, regarding the latter form of autumnal fever in Ohio, are equally applicable to intermittent fever, and a repetition is hardly necessary. In the meantime some of the mortality statistics of intermittent might be properly included. The mortality figures from intermittent fever at Toledo, for some years, past read as follows:

1867.	Deaths, 5.	1873.	Deaths, 1.
1868.	" 3.	1874.	" 2.
1869.	" 1.	1875.	" 1.
1870.	" 4.	Total in 7 years,	17.

The mortality from intermittent fever at Dayton:

1870.	Deaths, 1.	1874.	"	2.
1871.	" 5.	1875.	"	2.
1872.	" 4.	1876.	"	4.
1873.	Deaths, 4.	Total in 7 years,		22.

The mortality from intermittent fever at Cincinnati:

Years.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mor. by years.
1872		1				1				1	1	1	5
1873		1								3	3	1	8
1874				1									1
1875									2	1	1	1	5
										Total, by years,			19

Febris Icterodes (Yellow Fever).—In the fall of 1796, yellow fever is said to have appeared at Gallipolis, on the Ohio River. In the second volume of Drake's "Diseases of the Interior Valley of North America," page 285. In a note on this epidemic. The essay of Dr. Miller, of New York is quoted, who gives as authority an extract from a private letter of Andrew Ellicott, a non-professional observer. Volume second of Drake's work, was edited after the death of its illustrious author, by Dr. Hanbury Smith. It is a matter of regret that this statement in regard to yellow fever has been quoted far and wide on the authority of Dr. Drake. If reference be made to Drake's first volume, page 291, it will be seen that he denies in positive terms, the occurrence of an epidemic of yellow fever at Gallipolis; stating that the outbreak was one of malignant remittent fever. The writer has carefully examined the published letter of Andrew Ellicott (New York Medical Repository, vol. 4, p. 74), and can state positively that Dr. Drake's opinion regarding the outbreak as simply one of epidemic remittent fever, was correct. Dr. Peachy Harrison and Dr. Hildreth, the two earliest medical writers in Ohio, state that epidemic remittent fever was commonly called yellow fever by the majority of settlers. The Indianapolis epidemic of malignant remittent fever, which occurred in 1821, was regarded by many persons as yellow fever. It is to be hoped that future writers on the subject will not quote Drake as authority for the statement that yellow fever has prevailed as an epidemic in Ohio. *Yellow fever has never appeared in this State in its epidemic form;* occasionally, at rare intervals of time, sporadic cases of the disease have occurred.

These cases so reported, in all instances, had contracted the disease in southern cities, at infected points, and in no case has yellow fever been known to propagate itself in Ohio. Within a few years several cases have been reported in this city; Dr. P. S. Conner, if the writer is not mistaken, reported the last instance of sporadic yellow fever, in Cincinnati; unfortunately, our notes on this case have been mislaid.

Febris Typhoides (Typhoid Fever).—Drake noticed typhoid fever at an early date in the history of the State. Under the title typhous fever, he wrote an elaborate essay on the subject, in which he traced the origin of the disease and its gradual extension through the New England, Middle and Northwestern States. As early as 1809, it appeared as an epidemic at Cincinnati. In 1812, at Marietta. In 1842, it reappeared at Cincinnati in an epidemic form; two years later it was exceedingly prevalent at some points, notably Greene county, in the more interior portions of the State. In 1864, it appeared in the western portion of the State (Champaign and Preble counties). The disease at the present time may be said to be endemic in Ohio, prevailing to a greater or less extent over all portions of its territory; Cuyahoga, Ashtabula, Trumbull, Mahoning, Geauga, Portage, Summit, Lake, Stark, Richland, Morrow, Marion, Union, Montgomery, Warren, Preble, Butler, Fayette, Clinton, Clermont, Brown, Highland, Franklin, Greene, Clark, Madison, Champaign and Hamilton counties, seem to suffer more from typhoid than any other portions of Ohio. In Wayne, Medina, Lorain, Ashland, Holmes, Carroll, Columbiana, Jefferson, Jackson, Lawrence, Vinton, Scioto, Gallia, VanWert, Mercer, Auglaize, Allen, Hardin, Wyandot, Hancock, Darke, Logan, Miami and Shelby, is much less common. The disease appears to be uninfluenced by altitude, or geological conditions, prevailing in high and low situations, and over Carboniferous, Devonian and Silurian formations. Temperature does not seem to exert a very marked influence; as an epidemic, the disease is perhaps most fatal in the colder seasons; it generally makes its appearance during the fall, and is prevalent in the following winter months, the mortality curve showing a decrease in the early spring.

In the absence of any special epidemic tendency, typhoid fever in this latitude shows a disposition to follow the same periodic curve as intermittent fever; in the autumn they commence to prevail at about the same period. So marked has this fact appeared, that the writer has been led to believe that typhoid should be grouped with the class of diseases commonly known as autumnal fevers. The Census returns of 1850 and 1860, as collated by Jarvis, (see 8th Census, p. 256) show that during those years that "the most fatal month was September; the next October; the next August." The following table compiled from the volume on vital statistics, census of 1870, page 208, establish this fact still more plainly. If the mortality curves from remittent and intermittent fever be compared for the same period they will be found to be identical.

MORTALITY BY MONTHS—U. S. CENSUS OF 1870.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Enteric fever.	1654	1511	1759	1520	1484	1152	1538	2249	2767	2683	2113	1636

Numerous American statistics might be quoted to additionally sustain this assertion.

The geographical distribution of typhoid fever throughout the United States, shows that the disease is prevalent in all sections of the country. It has been held by many writers that it was more prevalent in the Northern than in the Southern States of the Union. Even such a reliable observer as Wood, has stated that "where miasmatic fevers prevail, typhoid is hardly known." On the other hand, Dr. Jarvis has given figures to prove the contrary assertion. Jarvis states: "That typhoid was destructive to 13,099 persons, or 47 per cent. of all in 1850. In 1860, it was more fatal, 19,236, or 54 per cent., dying from it in all the States. These cases were divided in proportions similar to those of intermittent fever among the several districts, except the Pacific regions; *it increased from north to south and from the east to the west*, except that the southeast suffered from it to a greater proportion than the southwest." The writer, from a careful study of the Ninth Census, has been led to the conclusion that the disease is as common in the Southern as in the Northern States. Taking the Southern States, and adding to their mortality from typhoid fever, the decedents from the same cause in Arkansas, which State might with all propriety be classified as a Southern State speaking in a geographical sense, it will be found that typhoid fever is just as prevalent South in proportion to population, as at the North. Estimating the population of the Northern States to have been 29,500,000, and the Southern States at 9,000,000, it will be seen that 16,860 deaths occurred in the

Northern section, and 5227 in the Southern section. If an estimate of the ratio of deaths to population be made, it will be found that the proportion of deaths in the two sections varies only in a slight degree.

We have spoken before of the change in type of malarial diseases in Ohio, a change which has gradually been going on for a number of years past. The history of the change in Ohio will be found to be identical with that which has occurred in States farther East. In the days of their earlier settlement, the New England and Middle States suffered from intermittents and remittents to a marked degree, but the cultivation of the soil, surface, drainage and the removal of other causes which served to develop the malarial tendency, have produced almost entire abatement of the disease in the Eastern and Middle states. The growth of population, had as a result, over-crowded towns, and the evils arising therefrom. Typhoid fever supplanted the older time remittents and intermittents. This same change in the type of malarial fevers is going on in Ohio. Typho-malarial fever, now recognized as a special type of disease, will be found to change its type in the due course of time, and assume the form of a purely developed typhoid; this latter change will be perfected only when the lingering malarial tendency, which still exists, shall have disappeared.

The deaths from typhoid fever occurring at Toledo for some years are reported as follows:

1867.	Deaths, 11.	1869.	Deaths, 34.
1868.	" 18.	1870.	" 14.

The following deaths from typhoid are reported at Dayton:

1868.	Deaths, 6.	1872.	Deaths, 10.
1869.	" 27.	1873.	" 12.
1870.	" 18.	1874.	" 19.
1871.	" 12.		

The subjoined table gives the mortality from typhoid fever, at Cincinnati by months for the last four years:

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Deaths by years.
1872	8	5	10	4	5	3	4	7	11	10	8	13	88
1873	10	7	6	7	7	5	10	12	8	10	35	19	136
1874	11	4	7	6	7	4	13	18	10	19	20	29	138
1875	18	8	4	3	7	14	7	11	13	15	14	18	132
Total,	47	24	27	20	26	26	34	48	42	54	77	79	494

According to the reports of Drs. Clendenin and Quinn, the deaths for the previous years read as follows:

1867— 8.	Deaths, 183.	1870—71	Deaths, 86.
1868— 9.	" 149.	1871—72	" 86.
1869—70.	" 55.		

It will be seen from these statements that typhoid fever has become endemic at Toledo, Dayton, and Cincinnati, and from time to time becomes epidemic at these points.

The deaths reported from *typhus* fever are not included in these mortality tables, although they should be. *Typhus* fever is unknown in the State, and the deaths reported from this cause, properly belong to either the typhoid or typho-malarial groups. In this city (Cincinnati), almost all the German physicians report their cases as *typhus abdominalis*, hence a confusion in nomenclature. If Farr's nomenclature could only be adopted by all the different Health Boards in the United States, this confusion might be obviated. Uniformity in the registration of vital statistics is a matter of great importance.

Milk Sickness (or the Trembles). This disease is not mentioned in Farr's nomenclature. Dr. Wood, in his "Practice of Medicine," 1858, classed this affection among the zymotici; following the example of Wood, we have placed it in the same group. Much has been written in regard to this peculiar form of disease. Dr. J. S. Billings, in a recent number of the "American Medical Journal," states, "since the first notice on this affection in Dr. Drake's notices of Cincinnati, in 1809, there have been printed four pamphlets and one hundred and ten articles in journals and transactions on the subject. Yet it cannot be said to-day, that we have any definite knowledge as to the pathology or causes of this affection." The disease is peculiar to the United States, having first appeared in North Carolina almost a century since; afterwards it made its appearance in Tennessee, Kentucky, Ohio, Illinois, Indiana and Missouri. It is an endemic in certain counties of Ohio, cases occurring from time to time, with now and then an epidemic outbreak.

We shall not attempt to describe the disease. In a late number of the "Cincinnati Lancet and Observer," Dr. W. H. Phillips has given an excellent *resume* regarding its etiology and treatment. The chapter in Wood's "Practice of Medicine," also gives a large amount of information relative to the subject, together with numerous bibliographical references. The most elaborate treatises on milk-fever which have yet appeared, are those of Dr. Drake and Dr. L. P. Yandell, of Louisville, Kentucky. Although written many years since, they are the most complete monographs on the subject of milk-fever ever published. In Ohio, as far as the author is aware, the disease has never prevailed as an *epidemic* east of the 83° of longitude. Eastern Ohio is altogether free from the disease. At rare intervals of time it has appeared sporadically in central Ohio; but in some of the western counties of the State it has been at times quite a common type of disease, as for instance, in Fayette, Clark, Clermont, Madison, Greene, Miami, Wyandot and Shelby counties. Dr. Slack (Western Lancet, vol. 15, p. 140) mentions the fact that milk-sickness was common in the neighborhood of this city (Cincinnati) at an early date. It was first noticed in Ohio, on the Little Miami River. With the clearing of the forests and the cultivation of the soil, the disease totally disappeared in this locality. Dr. Slack has proposed for this affection the term, "*ergo deleteria*," a name, judging from the mass of medical testimony regarding the causation of the disease, most appropriate. If the symptoms of milk fever be compared with the symptoms of ergot poisoning, so evidenced in epidemic outbreaks at a remote period in Continental Europe, many points of analogy are observable. For the present, at least, we shall favor the adoption of the name recommended by Dr. Slack, i. e.: "*ergo deleteria*." If this be adopted however, the disease must hereafter be classed among the *dietic* diseases and not among the *zymotici*.

The disease appears to prevail for the most part in malarial districts, lowlands, and principally over Silurian formations in Ohio and Indiana. In Kentucky, Illinois and Tennessee, it prevails over Carboniferous formations, but in such instances usually along the courses of streams, in the neighborhood of alluvial bottom lands. Mountainous districts appear to enjoy a comparative exemption. Temperature: the only epidemics reported, so far as the writer is aware, have occurred in the hotter seasons of the year, generally in mid-summer or autumn. A few instances may be cited however, where the disease has appeared in its sporadic form during the winter time. The northern limits of milk-fever is at about 42° north latitude. No mortality statistics are obtainable "from Board of Health Reports," at least in this State.

Dengue (or Breakbone Fever).—Following Aitken, we shall class this disease among the zymotici. Flint remarks (p. 1002) of Dengue, "it is an affection chiefly occurring in warmer climates, and prevails especially in cities and large towns." Dengue prevailed as epidemic in America as early as 1780. It was epidemic at Charlestown in 1839 and in 1850, and at Savannah in 1826; in 1847, 1850 and 1861 it appeared as an epidemic in various sections of the United States. In Ohio it made its first appearance in epidemic fever about the year 1841. During the prevalence of the disease in Southern cities in 1850, its influence was made manifest at various places along the Ohio River, notably at Cincinnati. Since that time it has only been observed at this point in a sporadic form. About the year 1866, the writer remembers seeing a single case at St. John's Hospital. During the last ten years no sporadic cases have been reported in Cincinnati. No deaths have so far occurred in the State of Ohio from this disease. Dengue only makes its appearance in the State in epidemic form, when it is pandemic in southern latitudes.

Cerebro Spinal Meningitis.—Not included in Farr's nomenclature, but at present classed among the zymotic diseases by almost all epidemiologists. Cerebro spinal meningitis probably appeared in the United States for the first time in 1806, and was then known as spotted fever. Dr. Joseph Jones* in his elaborate memoir on the subject, states: "*Spotted Fever* first excited attention and alarm in America, in 1806, at Medfield, Massachusetts. It appeared in Litchfield, Connecticut, in April, 1807, and continued in the towns of this State during 1808 and 1809. In 1809 and 1810, it appeared in several towns in Massachusetts, New York, New Hampshire and Vermont, and in the latter state it continued during the winter of 1810—1811. The disease also extended to Canada, Pennsylvania,. Kentucky, Northwestern Virginia, and finally to the southern extremity of the United States. Cerebro spinal meningitis, appeared in 1816—1817 in South Carolina and Massachusetts; 1818—1822, in Virginia, North Carolina and some of the Western States, Pennsylvania, Maine, Connecticut, Ohio; 1823—4—5—6, Connecticut; 1826, New Orleans and Fort Adams;

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* Medical and Surgical Memoirs—1876, vol. 1, p. 420—422.

1827, Ohio; 1832, Connecticut; 1845—6, Illinois; 1847, Mississippi, Tennessee, Missouri and Arkansas; 1847—8, Washington, D. C; 1848, Montgomery, Alabama; 1849, Mississippi; 1850, New Orleans; 1857, New York; 1859, Virginia; 1861—1865, Northern and Southern Armies, Indiana, Tennessee, North Carolina, Rhode Island, Pennsylvania, Ohio, Alabama, Georgia, New York, Vermont, Missouri, Kentucky, Massachusetts, Washington, D. C." Dr. Jones records numerous epidemics observed in the United States up to 1874.

Dr. Drake speaks of the appearance of cerebro spinal meningitis in the "Interior Valley" of North America about the years 1840—41 (v. 2, p. 751), but does not mention the date of the first appearance in Ohio. It will be noticed that Dr. Jones mentions its occurrence in this State as early as 1822, but unfortunately does not specify the locality where the disease was prevalent, or his authority for the statement. The earliest reference to epidemic cerebro spinal meningitis in Ohio that the author has been able to find, only dates back to 1863. Ten years later it had been observed at many points in the State. Most of the epidemics noticed in Ohio have occurred in the western portion of the State, over Silurian formations; in some instances however they have also been noticed over Devonian and Carboniferous formations in the central and more northeasterly sections. Altitude does not seem to exercise any particular influence, the disease prevailing on the highlands of Logan county, and the lowlands of Hamilton county. In a study of the mortality statistics of cerebro spinal meningitis, as evidenced by the Ninth Census (Cincinnati Lancet and Observer, 1873), the writer concluded that altitude had a tendency to diminish the mortality from the disease, but that this tendency was not made manifest until an altitude of over 800 feet above tide water had been reached. Cerebro spinal meningitis has not as yet, become endemic in the rural districts of Ohio, although in some of the larger towns deaths are reported every year. The deaths from this cause in Toledo for some time past may be tabulated as follows:

1867.	Deaths, 2.	1873.	Deaths, 21.
1868.	" 2.	1874.	" 3.
1869.	" 2.	1875.	" 4.
1870.	" 0.		——

Total in seven years, 34.

At Dayton:

1868.	Deaths, 3.	1873.	Deaths, 66.
1869.	“ 9.	1874.	“ 28.
1870.	“ 2.	1875.	“ 13.
1871.	“ 19.	1876.	“ 8.
1872.	“ 45.		
		Total in nine years,	193.

It will be noticed that from 1871 until 1874 the disease showed an epidemic tendency at Dayton.

At Cincinnati one death from the disease reported on February 29th, 1868; in the following August two deaths, in September one death; and in December one death, making a total of five deaths in that year. An epidemic appeared in the following year, which carried off 88 victims. The next year (1870) not a single death from the disease was reported. In 1871 the city was entirely free from it. In the spring of the next year (April, 1872) an epidemic suddenly appeared without giving any warning of its approach, and 12 deaths occurred in a single month. The annexed table gives the mortality of cerebro spinal meningitis from that time until a more recent date:

Year.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Mor. by years.
1872				12	18	12	6	6		17		3	74
1873	10	18	31	50	61	27	23	6	2	2	6	3	239
1874	4	6	7	7	1	11	7		2	1	1	3	50
1875	1	3	2	5	5	3	4	1		3	3	4	34
Total,	15	27	40	74	85	53	40	13	4	23	10	13	397

In Ohio cerebro-spinal meningitis has been observed more especially in Licking, Medina, Warren, Montgomery, Logan, Clark, Lucas and Hamilton counties. Season seems to influence the disease to a considerable extent. Out of twelve epidemics reported in this State and Indiana it appeared nine times in the spring, and three times in the winter. A high temperature tends to lessen the mortality. In a paper published by the writer, in 1873, the same conclusion was given, based on the mortality figures of the Ninth Census. Radcliff* states that in England, “season acts as an unquestionable and powerful predisposing cause of cerebro spinal meningitis, which is especially a disease of the cold months.

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* Reynold's System of Medicine.

Of 216 outbreaks in France and the United States, 116 prevailed between December 1st, and May 31st."

Flint (p. 646) remarks, "epidemics occur much oftener in the winter and spring than during summer months. Of the epidemics observed in this country (United States), nearly all were in the spring and winter. Smith[*] (p. 277), states: "among the meteorological conditions which favor the occurrence of the disease in cold weather." Boudin[†] noticed the period of outbreak of a number of epidemics in France in the following months:

January,	26 times.	July,	9 times.
February,	29 "	August,	8 "
March,	19 "	September,	7 "
April,	18 "	October,	9 "
May,	12 "	November,	15 "
June,	15 "	December,	20 "

Stillé[‡] claims that temperature does not influence the disease.

Other writers might be quoted for and against these conclusions. The majority however agree that hot weather diminishes the epidemic tendency of cerebro spinal meningitis.

In Ohio, as before stated, the western portion of the State has heretofore been most frequently attacked. In many of the eastern counties it has never yet appeared even in a sporadic form.

Influenza (or Epidemic Catarrh.)—Dr. Drake states: "The first and greatest invasion of this kind, which I had an opportunity of witnessing, occurred in the year 1807. In the summer or early autumn the newspapers brought the intelligence of its prevalence in Europe, and afterwards that it had reached our eastern cities. It was in October, when the weather was fine and steady, that it appeared in this locality (Cincinnati). Two regiments of militia, called into the field to repel from our frontier a threatened Indian invasion, were encamped a few miles out of town, and I was in attendance upon them. These men were its first *subjects*, the people of the town still being healthy. In a few days however, it reached the latter, and then sought out the scattered inhabitants of the country. At that time there was but little communication between our settlements, yet I was able to ascertain that it spread far and wide among them." The epidemic to which Drake refers, was confined for most part to the counties bordering on the Ohio River (Hamilton, Washington, and Belmont). In connection with the outbreak, an epizootic occurred among the wild and domestic animals. In Belmont county, for instance, squirrels died by the thousands, and for many years afterwards the trunks of hollow trees and stumps were filled with their bleached bones. The famous pandemic of influenza, that appeared in all parts of Europe and many portions of Asia in the year 1831, was also exceedingly prevalent in the United States. In Ohio its influence was manifest in all sections of the State, from the shores of Lake Erie, on the north, to the banks of the Ohio, on the south. It was, by far, most prevalent in the lowland counties and along the banks of the larger rivers and streams, in close proximity to bodies of water. The more elevated portion of the State suffered in a much less degree. In 1843 it appeared again in Southern Ohio, but did not prevail to any great extent. In 1874—5, a sub-epidemic was noticed in Scioto County. The disease has prevailed, at various periods, over Silurian, Devonian and Carboniferous formations. Season, or temperature does not seem to have influenced it, for it has been noticed in spring, summer, autumn and winter. In the meantime altitude has perhaps lessened its epidemic tendency.

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[*] Diseases of Children—1876.

[†] Archives Generales de Medicine, April, August, 1849.

[‡] Epidemic Meningitis, or Cerebro Spinal Meningitis—1867.

Scarlatina (or Scarlet Fever).—Drake (v. 2. p. 595), states: "a malignant form of scarlatina seems to have invaded the first settlers of Kentucky and Ohio, concerning which, however, but little is known. Even the exact period cannot be stated, but it was between 1791 and 1793. From the time of this epidemic, until 1808, I do not know that any form of scarlatina appeared in the valley of the Ohio. In that year cases of the anginose variety began to show themselves in Cincinnati, and the disease prevailed, more or less, for two or three years. Since these dates, that is for the last twenty-five years, it may be regarded as one of our endemics." Drake's surmise that scarlatina had become endemic in Ohio, is justified by the events of the last twenty-five years. Probably no town of any considerable size in the State has escaped the ravages of the disease. Epidemics have occurred, from time to time, in Brown. Clermont Clinton, Fayette, Highland, Carroll, Columbiana, Stark, Jefferson, Lake, Summit, Cuyahoga, Belmont, Washington, Erie, Montgomery, Scioto, Portage, Greene, Fairfield, Medina, Warren, Lucas and Hamilton counties. The other counties in the State have suffered in a less degree. The disease has prevailed over Silurian, Devonian and Carboniferous formation, the character of the rocks and soil not appearing to exert any influence. It has prevailed at all altitudes, in some instances height of position seeming to favorize the epidemic tendency. Epidemics have occurred at all seasons, spring, summer, autumn and winter. Scarlatina although prevailing at all times in sub-epidemics at various points in Ohio, assumes a general epidemic tendency every eight or ten years. All varieties of the disease, from the mildest to the most severe type, are observable during such periods. The mortality from scarlatina at Toledo for some years past, is reported as follows:

1867.	Deaths,	1.	1873.	Deaths,	5.
1868.	"	1.	1874.	"	2.
1869.	"	2.	1875.	"	6.
1870.	"	86.			

Total in seven years, 103.

At Dayton.

1868.	Deaths,	1.	1873.	Deaths,	11.
1869.	"	1.	1874.	"	12.
1870.	"	24.	1875.	"	5.
1871.	"	6.	1876.	"	9.
1872.	"	23.			

Total in nine years, 92.

At Cincinnati.

1867— 8.	Deaths,	17.	1870—1.	Deaths,	16.
1868— 9.	"	93.	1871—2.	"	48.
1869—70.	"	13.			

Total in five years, 187.

The following table gives the monthly mortality for some years past:

Years.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec	Deaths by years.
1872	5	4	3	2	1	2	2	2	3	4	1	4	33
1873	5	6	3	1	9	10	13	22	31	89	113	108	410
1874	107	87	74	66	53	48	52	48	40	47	37	28	687
1875	22	13	8	8	9	4	5	2	3	4	7	1	86
Total,	139	110	88	77	72	64	72	74	77	144	158	141	1216

In regard to the prevalence of the disease in the United States, including mortality statistics, notable epidemics, and the effect exercised by season, altitude, temperature, etc., the reader is referred to a pamphlet, published by the writer in 1875.*

Diphtheria.—It is more than probable that some of the epidemics of so-called "malignant" and "putrid sore throat," which prevailed at remote date in the history of Ohio were diphtheretic in character. As early as 1841, however, the disease was manifest in its purest type in several portions of the State. After that period sub-epidemics of the disease occurred, from time to time, until 1859—60, when it was epidemic in many portions of the State and also in Indiana. Diphtheria was also very fatal 1859 in the north of England and south of France, and the American epidemic of that period was widely distributed. After continuing for several seasons, the epidemic tendency seems to have subsided, until 1865, when it again became quite prevalent; since then sporadic cases and sub-epidemics have unfrequently occurred in various sections of Ohio. The disease has been more common in Greene, Highland, Brown, Clermont, Clinton, Fayette, Carroll, Columbiana, Stark, Jefferson, Erie, Muskingum, Cuyahoga, Clark, Montgomery, Madison, Lorain, Pickaway. Drake, Lake, Miami, Butler, Morgan, Monroe, Guernsey and Hamilton counties, than in the other counties of the State. The disease does not seem to be influenced by altitude, season, or geological formation. It has prevailed in highland and lowland counties, perhaps more commonly in the latter. Epidemics have broken out in spring, summer, autumn and winter, although most frequently in the colder seasons. It has prevailed over Silurian, Devonian and Carboniferous formations.

The following is a tabular statement of the mortality from diphtheria at Dayton, for some years past:

1868.	Deaths,	4.	1873.	Deaths,	18.
1869.	"	4.	1874.	"	3.
1870.	"	8.	1875.	"	2.
1871.	"	1.	1876.	"	6.
1872.	"	13.			——
				Total in nine years,	59.

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* MINOR. Scarlatina Statistics of the United States. Cincinnati, 1875.

At Toledo:

1867.	Deaths,	1.	1873.	Deaths,	1.
1868.	"	5.	1874.	"	8.
1869.	"	1.	1875.	"	6.
1870.	"	4.			

Total in seven years, 26.

In the city of Cincinnati the disease is endemic, deaths occurring in all months of the year, as the annexed table shows:

Years.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mor. by years.
1872	7	6	4	3	5	3	8	3	10	9	7	9	74
1873	9	4	5	3	4	6	4	9	4	8	10	6	72
1874	1	6	3	1	3	5	9	12	7	13	6	11	77
1875	10	5	4	5	2	1	2	3	2	11	8	3	56
Total,	27	21	16	12	14	15	23	27	23	41	31	29	279

Morbilli (or Measles).—Drake states: "This disease dates from the first settlement of the interior. It was wont to occur in the infant and insulated communities of Ohio and Kentucky, in the latter part of the last century, introduced by emigrants, or produced by a cause generated among them, *de novo*. Drake noticed severe epidemics of the disease in Cincinnati as early as 1803, and states that it was very prevalent in northwestern Ohio, in 1842. It is always present in Cincinnati and the larger towns of the State, assuming an epidemic tendency every six or eight years. It prevails in Ohio over Silurian, Devonian and Carboniferous formations, in highland counties and lowland counties, and at all seasons of the year, usually making its appearance however, during the winter and spring months. The type of disease varies at different periods; as a general rule it presents itself in a mild form. In the last epidemic in Cincinnati (1874), the mortality was about five per cent., on a rough estimate. Some of the past epidemics in the State have been peculiarly malignant; adults suffering to the same degree as the infantile population.

At Toledo, the mortality for some years past is reported as follows:

1867.	Deaths,	1.	1873.	Deaths,	5.
1868.	"	1.	1874.	"	6.
1869.	"	59.	1875.	"	0.
1870.	"	0.			

Total in seven years, 72.

At Dayton:

1869.	Deaths, 0.	1873.	Deaths, 2.
1869.	" 3.	1874.	" 11.
1870.	" 15.	1875.	" 0.
1871.	" 0.	1876.	" 9.
1872.	" 1.		
		Total in nine years,	41.

At Cincinnati, deaths have been reported every year for a long period back:

Years.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Deaths by years.
1872	6	8	12	3	7	2	7	1	1				47
1873		3	8	9	9	10	10	6		1	6	7	69
1874	8	4	15	13	21	19	22	5		2			109
1875							2	2	2	1	11	14	32
Total,	14	15	35	25	37	31	41	14	3	4	17	21	257

Erysipelas.— Sporadic cases of erysipelas occur in the State at all seasons of the year From time to time, the disease assumes an epidemic form, and at such periods it has been noticed that *puerperal fever* is also present. It may be truly said that when epidemic erysipelas prevails, puerperal fever is always prevalent at the same period. This fact has induced the majority of practitioners in the West and Southwest, to believe that an intimate connection exists between the two diseases. In a monograph published in 1874,* the writer gave numerous instances in proof of this connection. It has been denied, on the part of many European authors, that erysipelas ever presents itself in an epidemic form. The record of over one-hundred instances, in which both erysipelas and puerperal fever have been noticed to prevail together as epidemics in the United States, might be adduced, but it is deemed unnecessary, at least in the present paper. In a future and more elaborate article, the writer hopes to settle this disputed question so definitely that all doubt in regard to the prevalence of the two diseases in an epidemic form, may be finally removed. Drake, (v. 2, p. 623) gives the reference to some thirty-eight epidemics, occurring in the United States and Canada, from 1826 to 1849. The Transactions of various "State Medical Societies," contain the reports of any number of such outbreaks, which have occurred for the most part in the rural district of our country. The earliest epidemic in Ohio, of which we have a record, was in 1835.

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* MINOR. Erysipelas and Childbed Fever. Cincinnati, 1874.

From 1841 to 1851, the disease prevailed as a sub-epidemic in various portions of the State. In 1871—2—3, the mortality statistics of various eastern and western cities, show that epidemic erysipelas and puerperal fever prevailed together in these particular years. The writer was the first, so far as he is aware, to point out the fact. In a pamphlet published some months since, and in a private letter to the writer, Dr. Mathews Duncan, of Edinburg, the most distinguished European authority on the mortality statistics of childbed fever, denies that either erysipelas or childbed fever ever prevailed as epidemics. Dr. Fordyce Barker, of New York, the well-known and leading American authority on this subject, is equally positive that both diseases prevail, at times, as epidemics. Dr. Barker holds by far the strongest position, for the reason that he can adduce full records of numerous epidemics that have occurred in the United States. The epidemic of 1871—2—3—4, like the celebrated epidemic of 1841—2—3—4—5, traversed the United States from east to west, by slow stages. The earlier epidemic seems to have been most prevalent in the rural districts, avoiding the larger towns and cities. The later epidemic visited isolated country towns in many instances, but was most fatal in the larger cities. In New York, for instance, the mortality from metria, according to the Health Reports (Vide, Third Annual Report), was as follows:

Erysipelas.	1871,	deaths,	145.	Puerperal	fever,	362.
"	1873,	"	185.	"	"	454.
		Total,	330.		Total,	816.

At Baltimore, the total deaths in childbed and from erysipelas are as follows:

Erysipelas.	1872,	deaths,	32.	Childbed.	1872.	138.
"	1873,	"	47.	"	1873.	125.
"	1874,	"	49.	"	1874.	119.
		Total,	128.		Total,	382.

At Pittsburg:

Erysipelas.	Fiscal	year	ending	Feb., 1872,	deaths,	8.	Puerperal	fever,	9.
"	"	"	"	Jan., 1873,	"	11.	"	"	1.
"	"	"	"	Dec., 1873,	"	30.	"	"	55.
					Total,	49.		Total,	65.

At Chicago, for the year 1870—1—2—3:

Erysipelas.	1870,	deaths,	30.	Puerperal	fever,	55.
"	1871,	"	33.	"	"	68.
"	1872,	"	61.	"	"	131.
"	1873,	"	66.	"	"	133.
		Total,	190.		Total,	387.

At Cincinnati, 1866 to 1873:

Erysipelas.	1866,	deaths,	11.	Puerperal	fever,	12.
"	1867,	"	8.	"	"	18.
"	1868,	"	18.	"	"	16.
"	1869,	"	14.	"	"	10.
"	1870,	"	19.	"	"	14.
"	1871,	"	12.	"	"	10.
"	1872,	"	43.	"	"	40.
"	1873,	"	28.	"	"	82.
		Total,	153.		Total,	202.

The statistics of other points might be quoted, showing the development of both erysipelas and puerperal fever at about the same time. In Ohio, erysipelas had prevailed for the most part in the western section of the State and over Silurian formations. Although deaths occur at all seasons the mortality is by far the slightest during the warmer months of the year. The remarks made in regard to erysipelas are equally applicable to puerperal fever. Seemingly dependent on a common poison, we have classed them both in the same category.

Variola (or Small-pox).—This disease has been observed in Ohio since an early date in the history of the State. It is only within the last twenty years however, that the disease has become unusually prevalent. Prior to 1850, it was almost wholly limited in its epidemic form, to two or three of the larger cities. Since that time it has gradually spread to the various inland counties and, in many instances, its appearance has been signalized by a fearful mortality, even in sparsely settled communities. In all cases however, physicians have been able to finally stamp out the disease by isolating their patients, and enforcing vaccination. It seems strange that in a State, boasting of a more than average intelligent population, no decided steps have been taken towards securing the passage of a law, making vaccination compulsory. Epidemics in the rural districts may always be traced to the seat of primary infection, i. e.: Cincinnati. It so happens that a certain uneducated class of our European population, immigrants, who seek the United States as an asylum in which to enjoy the rights and liberties of a free people, exercise their privileges to such an extent as to hold the balance of political power, and obstruct the passage of laws calculated to prevent the spread of that most loathsome and malignant disease, small-pox. Although but a mere minority, this class of the community is allowed to enjoy its *liberty* to such an extent as to endanger and often destroy the lives of many of our population. Utterly opposed to vaccination, they bar the way to legislative enactments, and find in both political parties men who are mean and cowardly enough to bow and cringe before their sovereign will for the sake of political patronage. That small-pox is rapidly becoming endemic in Ohio, is a lamentable fact, fully evidenced if the mortality statistics of a certain city in the State are studied. The people of the smaller towns and rural districts have the remedy in their own hands, let them apply it for the comfort and welfare, not only of themselves, but also for the State at large, and for our fellow citizens of neighboring States. The various "County Medical Societies" should investigate the matter and see that country members of the Legislature, no matter of what party, shall be pledged to protect their own constituents against a disease which is, in almost all instances, imported from Cincinnati. If political considerations are thrown aside in this one instance, and a Legislative bill passed giving the "Boards of Health," of Cincinnati, Toledo, Cleveland, Dayton, Columbus and Portsmouth, the power to *enforce vaccination*, smallpox can be entirely driven out of the State within the next three years. At the present time the "Health Boards" of Ohio, are wholly helpless and almost useless during an epidemic of variola, for the simple reason that they are unable, legally, to use *preventative* measures.

The mortality at Toledo, for some years past is reported as follows:

1867.	Deaths, 0.	1873.	Deaths, 1.
1868.	" 0.	1874.	" 0.
1869.	" 0.	1875.	" 0.
1870.	" 0.		—
		Total in seven years,	1.

Showing a singular immunity from the disease.

At Dayton:

1868.	Deaths, 0.	1873.	Deaths, 89.
1869.	" 3.	1874.	" 2.
1870.	" 1.	1875.	" 0.
1871.	" 0.	1876.	" 2.
1872.	" 5.		

Total number in nine years, 102.

At Cincinnati. The following table is taken from Dr. Quinn's last excellent "Health Report":

DEATHS FROM SMALL-POX DURING EACH MONTH OF THE LAST NINE YEARS.

Years.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Total.
1867--68*													13
1868--69	146	147	13	25	11	7	13	10	18	32	76	142	640
1869--70*													231
1870--71	7	9	6	8	15	4		3	11	10	16	4	93
1871--72	172	136	6	2	5	4	11	39	88	193	241	282	1179
1872†	172	136	113	81	59	43	23	12	7	4	5	3	658
1873	3	9	14	12	4	3	1	2					48
1874					1								1
1875	2	14	8	7	24	20	20	17	25	79	217	289	722

The disease prevails over all formations, at all seasons of the year, the greatest mortality however being in the colder months.

Varicella (or Chicken-pox).—Although this disease has occasionally appeared in the State as an epidemic, it cannot be said to be common. No deaths from varicella have been reported within the last ten years. In 1874, six cases were reported to the Cincinnati "Board of Health;" these cases ultimately recovered. The disease is rarely seen even in its sporadic form.

Cynanche Trachealis (Croup).—Croup is not uncommon in Ohio, always present in the colder and damper months of the year, in its sporadic form. It has sometimes appeared to exhibit a decided epidemic tendency. The lowland counties of the State, or those portions of the highland counties in close proximity to lakes, rivers and streams seem to suffer the greatest mortality from the disease.

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* Until 1872 each year ended with the last day of February. No monthly statements were published in the years 1867—68 and 1869—70.

† January and February of this year are also included in the report for 1871—72.

The following are the mortality statistics from croup at Toledo, as reported for some years past:

1867.	Deaths, 20.	1873.	Deaths, 7.
1868.	" 6.	1874.	" 8.
1869.	" 6.	1875.	" 19.
1870.	" 4.		
		Total in seven years,	70.

At Dayton:

1868.	Deaths, 7.	1873.	Deaths, 13.
1869.	" 5.	1874.	" 4.
1970.	" 12.	1875.	" 3.
1871.	" 6.	1876.	" 6.
1872.	" 7.		
		Total in nine years,	63.

At Cincinnati. The annual mortality from croup for eight years past has annexed 64. The annual table shows the mortality by months for four years past:

Years.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mor. by years.
1872	10	6	5	2	1	2				2	7	10	48
1873	3	1	2	2	1	1	2	1	4	5	8	11	41
1874	8	2	4	8		2			2	4	9	6	45
1875	8	5	3	1	2			3	8	11	9	2	52
Total,	29	17	14	13	4	5	2	4	14	22	33	29	186

Pertussis (or Hooping-cough).—This disease prevails in its sporadic form at all seasons of the year in Ohio, occasionally becoming epidemic. It was noticed as an epidemic as early 1807, and again in 1847—8. It is endemic in the larger towns of the State, the greatest mortality taking place in the colder months of the year. It is more common in the lowland than in the highland counties, although it occurs in all. It is seen more frequently over Silurian formations than over the Devonian and Carboniferous. The close proximity of streams and larger bodies of water seem to be the most favorable conditions for its development.

When epidemics occur in summer time, as sometimes happens, the season is noticed to be unusually cold, the atmosphere at night being especially damp.

The mortality at Toledo, for some years past, is reported as follows:

1867.	Deaths,	9.	1873.	Deaths,	14.
1868.	"	0.	1874.	"	3.
1869.	"	3.	1875.	"	0.
1870.	"	22.			
			Total in seven years,		51.

At Dayton:

1870.	Deaths,	13.	1873.	Deaths,	5.
1871.	"	0.	1874.	"	3.
1872.	"	1.	1875.	"	1.
			Total in six years,		23.

The average annual mortality from hooping-cough at Cincinnati, for the past nine years, was about fifty. It prevailed as an epidemic in the city in 1867--8, and again in 1875; the type of disease in both instances being mild. The monthly mortality for some years past is reported as follows:

Years.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mor. by years.
1872	2	7	15	2	9	9	2	2			1		49
1873	1	2	1	4	2	1	1	5	1	1	3	2	24
1874			1	2	1	3	5	6	5	3	5	7	38
1875	21	18	21	7	11	3	4	7	4	4	5	6	111
Total,	24	27	38	15	23	16	12	20	10	8	14	15	222

Ophthalmia.—Has prevailed occasionally as a sub-epidemic. The disease has been rarely seen of late years however, outside of hospitals and various charitable asylums. The type usually observed is mild, readily yielding to appropriate treatment.

Dysenteria (or Flux).—Dysentery in its sporadic form is a common affection in Ohio. The disease assumes an epidemic tendency when cholera invades the State, and usually for several years after the visitation of this latter disease, dysentery is apt to be more than ordinarily prevalent. It occurs over Silurian, Devonian and Carboniferous formations, being most common over the former. It is noticed in both highland and lowland counties, though most often in the latter. Although noticeable in its sporadic form at all seasons, at least eight-tenths of the mortality from the disease occur during the warmer months of the year. Of twenty epidemics recorded in Ohio, sixteen made their appearance in the summer time; a high temperature, and close proximity to alluvial bottom lands in the neighborhood of the larger streams, seems to favorize the dysenteric tendency. It has appeared in epidemic form as far north as the Lake shore (Erie county ;) as far east as the Pennsylvania border (Columbiana county); as far west as the Indiana border (Butler county); and in the southern portion of the State, at various points along the Ohio River (Washington, Brown, and Hamilton Counties). It is most common in western and Southwestern Ohio, and in malarial districts; and when occurring at such points, quinine is one of the remedies on which much reliance is placed. Epidemics of dysentery are noticed most often in the rural neighborhoods, where the supply of pure water is scanty.

The mortality from dysentery in its sporadic form at Toledo for some years past is reported as follows:

1867.	Deaths,	7.	1873.	Deaths,	7.
1868.	"	9.	1874.	"	6.
1869.	"	16.	1875.	"	8.
1870.	"	3.			
			Total in seven years,		56.

At Dayton:

1868.	Deaths,	7.	1873.	Deaths,	4.
1869.	"	22.	1874.	"	5.
1870.	"	2.	1875.	"	3.
1871.	"	7.	1876.	"	9.
1872.	"	11.			
			Total in nine years,		70.

At Cincinnati:

1867—8.	Deaths,	62.	1872.	Deaths,	67.
1868—9.	"	117.	1873.	"	63.
1869—70.	"	109.	1874.	"	85.
1870—71.	"	76.	1875.	"	68.
1871—2.	"	69.			

It has been frequently noticed by physicians, that during the *raspberry* season (July and August), dysentery and cholera morbus are unusually prevalent, and many cases of both those diseases have been attributed to the excessive use of this fruit.

Diarrhœa.—In common with all the States in the same latitude, this disease may be said to be endemic in Ohio. It has rarely been noticed to prevail as an epidemic, and in such instances only at localized points. At Cincinnati, it has appeared as an epidemic in winter time on several occasions. In its sporadic form, it does not seem to be influenced by altitude or geological formation, although it is perhaps more ordinarily seen in lowland than in highland counties. The greatest mortality from the disease is in the warmer months of the year, though in times of epidemics temperature has not seemed to exercise any perceptible effect, for, as previously mentioned, the only epidemics reported have occurred in winter.

The mortality from diarrhœa at Toledo, for some years past, is reported as follows:

1867.	Deaths, 12.	1873.	Deaths, 18.
1868.	“ 40.	1874.	“ 18.
1869.	“ 30.	1875.	“ 13.
1870.	“ 15.		

Total in seven years, 146.

At Dayton:

1868.	Deaths, 6.	1873.	Deaths, 8.
1869.	“ 8.	1874.	“ 9.
1870.	“ 7.	1875.	“ 11.
1871.	“ 8.	1876.	“ 13.
1872.	“ 10.		

Total in nine years, 80.

At Cincinnati. The following table is taken from the Health Reports of Dr. J. J. Quinn:

DEATHS FROM DIARRHŒA DURING EACH MONTH OF THE LAST NINE YEARS.

Years.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1867–68*													76
1868--69	1	5	1	1	8	9	49	25	13	10	8	5	135
1869--70*													87
1870--71	2	11	1	2	3	21	21	17	15	9	6	3	101
1872	2	9	1	8	3	19	27	27	19	6	9	8	138
1873	3	2	3	2	3	33	31	41	21	22	3	8	172
1874	1	4	2	2	4	11	26	19	16	9	29	8	131
1875	8	5	6	5	7	19	47	38	20	9	3	2	169

Cholera Infantum.—This disease is endemic in the larger cities and towns of the State, situated in the lowland counties. It prevails most frequently over Silurian formations and during the hotter months of the year. It is most common in western and southwestern Ohio, and although seen occasionally does not prevail extensively in the eastern and northeastern sections of the State. The mortality from this cause at Toledo, for some time past, is reported as follows:

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* No monthly statement published.

1867.	Deaths, 12.	1873.	Deaths, 60.
1868.	" 1.	1874.	" 46.
1869.	" 32.	1875.	" 76.
1870.	" 30.		

Total in seven years, 257.

At Dayton:

1868.	Deaths, 36.	1873.	Deaths, 31.
1869.	" 38.	1874.	" 44.
1870.	" 30.	1875.	" 27.
1871.	" 30.	1876.	" 29.
1872.	" 28.		

Total in nine years, 293.

At Cincinnati. The following table compiled by Dr. J. J. Quinn, gives the monthly mortality for some years past:

DEATHS FROM CHOLERA INFANTUM DURING EACH MONTH OF THE LAST NINE YEARS.

Years.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1867--68*													170
1868--69	1		1		2	24	104	72	26		2		232
1870--71	2				3	41	80	50	21	5	3	1	206
1871--72	1				4	34	38	40	16	5	4	2	144
1872	1		1	3	5	27	41	44	29	3		1	155
1873		1	2	2	6	93	74	26	21	7	4	2	238
1874	1	1	2		2	32	74	58	34	22	4	1	231
1875	1	1	1		4	27	90	30	41	5	3	1	204

It may be safely asserted, that the more overcrowded a town becomes, the greater will be mortality from this cause. Swill milk; want of pure air; excessive use of malt liquors on the part of parents; a prolonged high temperature, account, in part, for the heavy mortality from cholera infantum in the larger cities during the summer months.

Cholera.—The epidemics of cholera which prevailed in Europe in 1832, 1848—9, 1852—4, 1866, also reached the United States, and among other places visited, was Ohio. The American cholera epidemic of 1873, *which was not imported from Europe*, also prevailed in this State. It is not the writer's intention to enter into a controversy regarding the latter epidemic. It is well-known however, that a medical "Commission" was appointed by the United States Government to inquire into the cause of the epidemic of 1873. That the report made by the "Commission" was elaborate, there can be no doubt but that the *conclusions* drawn by the same "Commission" were wholly unwarranted and unsupported by any facts adduced from the mass of material placed at their disposal, is also a fact not to be successfully controverted. Notwithstanding the protests made by "Health Officers" in the South, Southwest and West, the epidemic of 1873 was proclaimed to be an *imported* one, and an official endorsement of this conclusion was given by the United States Governmenf. Later, an English writer in the "Medico Chirurgical Review," proved conclusively that the ships in which the cholera germs of 1873 were said to have been imported, sailed from Europe several months before the cholera made its appearance at the ports of departure. Only a short time since, Dr. Max. van Pettenkofer, of Munich, Bavaria, in an elaborate review of the subject, completely refuted the claims of the "American Cholera Commission": discussing the nine propositions made by the "Commission," Pettenkofer observes: "In the whole report nothing having even the appearance of a proof of the nine propositions can be discovered." Dr. White, of New Orleans, Dr. J. J. Quinn, of Cincinnati, and numerous other observers in the Mississippi Valley, who protested against the *importation* theory can now rest satisfied that their better judgment has been fully vindicated.

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* No monthly statement published.

A few sporadic cases of cholera occur in Ohio every year; in many instances however, deaths from this cause are attributed to another affection. Patients are attacked suddenly with vomiting and purging; with characteristic rice water discharges; and dying in a collapsed state within a few hours, the death certificate is filled out with the words *cholera morbus.* The business interests of every large city demand that this shall be done, for the report of a single death from cholera in a community, awakens widespread alarm and deters country merchants from visiting a place where cholera is supposed to be prevalent. The Census returns of different years show that sporadic cholera is present at all times. If the Health Reports of various cities in the United States for a number of years back be analyzed, a complete chain of evidence on this point could be adduced. In the State of Ohio, for instance, previous to the Census of 1870, the following reports of deaths from sporadic cholera are noticeable:

1867.	Cincinnati,	deaths,	3.	1869.	Toledo,	deaths,	2.
1868.	Toledo,	"	1.	1870.	"	"	3.

If sporadic cholera is always present in the United States, there is no reason why, under favorable circumstances, the disease should not propagate itself at times and prevail in its epidemic form. The writer is aware that this statement will be denied by many physicians; yet, a careful study of the mortality statistics of various cities in the United States for some years past, must inevitably lead the most sceptical mind to the conclusion that cholera is now indigenous to this country. In England, Drs. Farr, Aitken and others, long since proclaimed the fact that it was indigenous to Great Britain.

The most fatal epidemic which ever visited Ohio, was the one of 1849-50. The city of Cincinnati, at that period lost one out of every sixteen of its population, the number of deaths having been estimated at 6000. When epidemic cholera has visited Ohio it seems to have exhibited a decided preference for the valley counties of the State. The highest altitude at which the disease has so far, been observed in Ohio, was at Salem (Columbiana county), a town having an elevation of 950 feet above tide water. As to season, cholera has made its appearance during summer, fall and winter months, being by far most fatal and prevalent however, in the hottest seasons. Geological conditions do not seem to exert much influence, as the disease has prevailed over Silurian, Devonian and Carboniferous formations, perhaps most often over the Silurian. In its travels through Ohio, at various times, cholera has shown a decided preference for the water courses; traveling along the larger rivers and streams. The disease has been epidemic as far north as Sandusky, on Lake Erie, and as far south as Cincinnati, on the Ohio River.

Having now completed our short " notes," they are submitted to the medical men of Ohio, for approval or disapproval. Accuracy in statement is to be courted, and fully aware that some of our conclusions will not be endorsed by all physicians, we ask for their objections to the same, only asking the privilege of replying, should the necessity for so doing arise.

Art. 4.—As to how Quinia and Cinchonidia act in modifying the Body Heat.

BY R. B. DAVY, M. D., Cincinnati, O.

A Paper read before the Cincinnati Medical Society, April 7th, 1877.

Mrs. K—, aged 26 years, mother of one child, is sick with inflammation of the lower lobe of the left lung. Her temperature on the 3d day of the attack was 103.5°, at 7 A. M. She then took 4 of McK. and R. 5 gr. quinine pills, and at 6 P. M. it had settled to 103°, and the next morning to 102.5°. There was a diarrhœa existing, and I did not check it. On the 6th day of the trouble, rusty sputum appeared, and the temperature indicated was 102.8°, pulse 120. On the following morning, when the temperature was the same and the pulse 108, I poured out from a sample of sulphate of cinchondia, which had been sent to me, as I supposed about 40 grains, but it must have been more, and directed it to be taken in two doses twelve hours apart. By some mistake, the whole was swallowed in the the space of an hour. In addition to this she was taking a cough mixture whose base was an opiate. 8 hours afterwards I was called hurriedly, with the statement that she was unconscious. When I arrived at her bed-side, she was wide awake, with a staring look, but would answer some of my questions. There was a spasmodic condition of the muscles when touched, and constant tremor when she tried to perform a muscular act. I used the thermometer in the mouth with difficulty, and found that the heat had subsided to 101.2°, while the pulse was 130 per minute; was perspiring, eyes unchanged, hearing was good, but appeared to comprehend only a small part of what was said to her. She could protrude her tongue slightly, but with great difficulty and tremor. Two hours afterwards I saw her again; she had remained easy without cough or pain, and had gradually relaxed into a condition of which apparent stubbornness was the characteristic. She answered no questions, and appeared to treat everything and everybody indifferently, staring blankly at an object, and literally flooded with perspiration. I placed the thermometer under the tongue, but was compelled to pinch the lips up around it with my fingers, as she was unable to close them herself. Both in the mouth and axilla the instrument indicated 100.5°, pulse 108, breathing easy, and not very much accelerated. She took fluids sparingly when offered, and moved the lips and upper extremities in a restless kind of a way, presenting the same spasmodic starts and twitches, that I had noticed two hours before. This condition lasted an hour and a half longer, when she first began to comprehend what was spoken to her, and to answer intelligibly. That night she rested quietly without sleeping, and at 10 A. M., the next day, the temperature had raised to 101°, and the pulse was 96. From that time the temperature gradually declined, and without further untoward symptoms, the patient made a speedy recovery. There was no mental wandering at any time caused by the pneumonia, and from what could be learned, no predisposition to hysteria.

I wish to make this case the subject of a few remarks on the physiological and therapeutic action of the cinchona alkaloids. I could not have chosen a better case than the one presented, to show the effects of the sulphate of cinchonidia, that is, its full effects, for it must be admitted that there were symptoms of slight poisoning present. I shall offer very little in the discussion of the relative merits of the salts—my experience with the cinchonidia has been too limited—I am satisfied myself, however, that in either the quinia or cinchonidia, we have a febrifuge of undoubted power. Cinchona has been given as a cure for fevers, to our knowledge, for nearly two hundred and forty years, and it has not been until recently, that any one has ever dreamt of its way of acting. It was given in fever; it cured it, and that was enough. Two centuries and a half have almost passed, and though we are by no means clairvoyant yet, the veil has been partly lifted from our eyes, and we see with a new light. To no individual are we so greatly indebted for information pertaining to this subject, as we are to Claude Bernard, of Paris, and though, so far as I know, he has not given us the modus medendi of quinia, etc., he has certainly instructed us far enough to form our own conclusions. In order to understand the nature and cause of animal heat, normal or abnormal, it is necessary to study the apparatus and mechanism of nutrition, for it is now no longer questioned, that the great source of animal heat is in the tissues of the body at large, in immediate contact with the capillaries. This apparatus consists of the heart and blood-vessels, and their nervous control; in other words, muscular tissue of a peculiar and varying kind in the walls of the smaller arteries, to which are distributed a system of minute nerves, through which impressions are conveyed to change the muscular tone, thereby changing the calibre of said vessels. These nerves, which are ordinarily styled "vaso-motor nerves," form the great stumbling-block for modern physiologists, the existence of muscular coats in the arteries having been known almost since the time of Galen. A motor nerve is in all cases connected with muscle, and a sensitive nerve with some sensitive part, both kinds joining in a centre. Among the different kinds of motor nerves, whose existence has been alleged, may be mentioned voluntary filaments, involuntary filaments, vaso-constrictor, vaso-dilator, secretory and trophic. Claude Bernard (Leçons sur la chaleur animale, p. p. 217—218) denies the existence of the last two varieties as separate nerves, and says that the phenomena ascribed to them are results of action of the vaso-motor system, but adds that much is yet to be cleared up on the subject. He thinks that the old experiment of Magendie, of section of the 5th pair exterior to the ganglion of Gasser, and the consequent atrophy of the corresponding eye and side of face, without the myeline or anatomical characters of the vaso-dilators being at all affected, is strong proof that the nutrition of these parts is stimulated by the vaso-dilator nerves. As to the secretory nerves, he was able to fill the submaxillary gland with blood, set it at work secreting, or empty it of blood at any time by simply manipulating with the vaso-motor nerves. His ideas concerning the constrictor and dilator nerves of the vessels, are more positive. He holds that these are two distinct sets of nerves, the former belonging to the sympathetic, and the latter to the cerebro spinal system. It is a well known fact, that division of the sympathetic nerve produces congestion and heat in the parts supplied by it; increase of tension in the arteries and veins, and even pulsation in the latter. Galvanization of the divided nerve counteracts all these phenomena, nay, after division of the artery, it causes both peripheral and central ends to contract. (p. 247, et suiv.)

On the other hand it has been shown by Bernard, (p. 236, et s.) that excitation of the auriculo temporal of 5th, the chorda tympani, and pneumogastric in the abdomen, has severally caused dilatation of the vessels in the ear, the submaxillary gland, and kidney. In frogs poisoned with woorara, after the voluntary nerves are affected, and before the vaso-motors are reached, the circulation may be very much modified through the latter by excitation of the sciatic; and dogs, before being fully influenced by the same poison, show a hypersecretion of saliva, and an injection of the ear, which is not visible when the chorda tympani has been divided—the supposition being that woorara stimulates the function of this nerve before abolishing it. (p. 231). All the arterioles of the body are furnished with this apparatus for gauging the blood supply—muscular fibres, and two sets of nerves; both sets of nerves terminating, so far as we know, in the same muscular fibres, each producing its effect in an active way, though the one is contraction, and the other relaxation. It is hard for us to understand that relaxation of muscle is not passive, but we must remember that this is a peculiar kind of muscle, and quick and decided contraction never takes place. There is no fixed point at which its contraction ceases, and the same may be said of its relaxation. It is constantly vibrating between these two conditions, and the extent of its motions, either way, is governed by the influences it receives through the nerves. Now the fact appears to us that whatever power it is that modifies the body heat, by increasing or lessening it, must do it through the agency of this apparatus. If it is some unknown cause that produces fever, and quinia, or some kindred remedy that cures it, this is the seat of their action. Whatever influence that disturbs the equilibrium and normal tone of the muscular substance of the arterioles, whether it is to destroy or derange the function of either set of nerves, thereby giving undue power to the other set, according to the physiological teaching of the day, must produce either an acceleration, or a retardation of the vital processes. The former corresponds to fever, the latter may correspond to what we have been taught to call marasmus; and when the action is local, which is certainly quite common, the above named conditions are replaced by hypertrophy and atrophy. Claude Bernard, (p. 246) in this connection, says: "Fever is, so to speak, a paralysis of the vaso-motor constrictors, or a super-activity of the vaso-motor dilators. That the preparations of cinchona act on one of these sets of nerves, seems to be very clear, but to determine which set is influenced, and exactly how it is influenced, is beyond the intention or hope of this paper. In a simple case of fever, we might say that it acts by stimulating the constrictors, or weakening the dilators, but in case of malarial fevers, in which this is the remedy "par excellence," there is certainly a more complex action. I do not want to be understood as discussing the cause of intermittent fever, but a knowledge of the physiological facts recently set forth, leads one to compare the phenomena of this disease, with artificial symptoms brought about by experimentation on animals. How well the cold stage coincides with the abolition of power in the dilators, and how well the hot stage agrees with the abolition of power in the constrictors, but the sweating stage is difficult to reconcile. Pflüger's idea of secretory nerves would appear to be applicable here; but we must not ignore the teachings of Bernard, which show that no such nerves could cause a gland to secrete, if the vaso-dilators did not permit the passage of blood to it. That it needs any additional stimulus beyond that of an increased supply of blood, did not appear to him. Granting that it is the vaso-motor dilators that preside over or regulate the phenomena of secretion, we must accord to them a local or divided action, as indeed they have, for nothing is more common in pathology than engorgement of one organ, or set of organs, and the almost complete stasis of blood during the intervals of repose of all organs is known to all. Without following this direction any farther, I will state that this kind of sweating is an act of the system brought about, in all probability, by functional changes, wrought in the vaso-dilators or other nerves by the direct action of internal heat. If we understood the cause of chills and fevers, our ideas would be more definite concerning the differential conditions of the hot and sweating stages; but, ignoring that, we can see the influence of heat, internal and external, acting through these structures, which serve in many instances as a safety valve to the normal temperature, every day of our lives. As examples may be mentioned the heat entailed by vigorous muscular exercise, or the atmosphere of a summer day ; cases of burning fever, when the skin is dry and hot, furnish us with conditions where its normal glandular activity is interfered with, probably through the medium of nerves, though possibly through some fault of the gland cells; and cases of colliquative sweating present instances of a different character; in which a seeming nervous element figures quite as prominently. It is familiarly known to physiologists that heat acts powerfully on both muscular and nervous substance, and with this fact before us, and no other very plausible idea to account for this hypersecretion of the sudoriferous glands, the above conclusion is not a rash one. Although it is evident that quinia cures by acting through this vaso-motor apparatus, the limit or direction of its action is by no means apparent, for it is equally successful in really opposite conditions. It has certainly not the same condition to relieve in congestive chill as it has in remittent fever. My conclusion is, that quinia acts not so much in increasing and reducing temperature as may be done by artificial manipulations, as it does by clearing up the road, so to speak, for the physiological action of the natural fluids which course through these minute conductors during health; and moreover, the limit of its action cannot be fixed expressly on vaso-dilators, vaso-constrictors, or the peculiar contractile substance in the coats of the minute arteries and capillaries, any more than it can on any nervous center or number of centers.

To return to the case presented, we have the action of quinia and cinchonidia in quite a different disease, that of pneumonia. In order to arrive at the probable action of these agents in pneumonia, we must spend a few moments in examining its pathology, and the chief question which occurs to us is—what is the nature of this pneumonic fever? What is the source of its heat? All the writers on inflammation agree, without exception I think, to several different stages of the disease in developing itself: first the circulation quickens in the part, then it becomes slower, oscillates, finally ceases, and afterwards infiltration takes place. Pain, heat, redness, swelling, etc., are set down as symptoms.

Are we to conclude that the inflamed lung heats up the body like a furnace would? I think not; for we have cases of small portions of lung being affected, and the consequent fever is comparatively high; and J. H. Bennett (Prac. of Med. p. 160) and others tell us that individuals may take sick and die with latent pneumonia, without fever or pain, when, in truth, the disease has observed its usual course.

The experiments of Mantegazza, Heidenhain, and Bernard have demonstrated the fact that pain reduces the normal temperature, and Bernard has shown the opposite effect after the function of the great sympathetic has been abolished; thus he caused the temperature in the ear of a rabbit to rise over 25° F. This fact, apparently out of place here, is mentioned to show that simple impressions are capable of acting through the vaso-motor nerves to modify the body heat. The fact that an inflamed part is separated entirely from the general circulation, would seem enough to convince us that the latter does not obtain its heat directly from the former; and this opinion is fortified by the action of quinia, for quinia stops the fever, but does not cure the inflammation. I think it impossible for quinia, or any of its kindred agents, to produce a cure in the short time of its physiological action, upon any condition where exudation has taken place. The conclusion that I wish to arrive at then, is, that the fever of pneumonia, and troubles of a like character, to which may be added traumatic fevers, are caused by influences through the vaso-motor apparatus on the general circulation; but what this influence in most cases is, or on what part of the apparatus it specially acts, it is impossible to say. It is very evident that when it acts on the system at large, enough to influence the general temperature, its action takes place through the great nervous centres of organic life, though it cannot be denied that small centres are likewise specially affected, as manifested in determinations to certain parts. Nothing is more common than temporary deafness after the administration of quinia, and in cases where poisonous doses have been taken, the complete loss of hearing, sight, and speech has been the rule. Cinchonidia, in my hands, does not produce the same extent of ringing in the ears as quinia, but most patients complain of a fullness in the frontal region; and the fact that this part is specially affected may help to explain the phenomena of muscular twitching, observed in the case presented, it being known that there is a connection between the anterior convolutions of the brain, and the muscles of the upper extremities.

To sum up then, it appears: that quinia, etc., act by diminishing the calibre of the capillary system, or by increasing it, as the patient is in the hot or cold stage of the malarial fever; that they act in pneumonia likewise by diminishing the size of these vessels; and that their action on the sweat glands is doubtful, if not altogether wanting.

What I have had to say in regard to sweating, appeared to me as necessary in the elaboration of the subject, and the hypothesis that I have set forward to account for the physiological process, is I think, in accordance with the best teaching of the day.

The truth or falsity of the second hypothesis is easily susceptible of proof, and its acceptance as fact would, in many cases, very materially strengthen our methods of treatment. If symptomatic fevers can be controlled or avoided we can vastly increase the probabilities of recovery, and if quinia, cinchondia or any remedy of the kind will give us this effect, we must take it as strengthening the hypothesis.

Art. 5.—Tertiary Syphilis Therapeutically Considered.

By CHAS. P. KING, M. D., Newark, O.

Read before the Licking County Medical Society, Feb. 6th, 1877.

As the subject of tertiary syphilis was brought up for discussion at our society meeting some two months ago, and having at that time stated that the use of mercury in this form of the disease was not now considered good practice, and was condemned by the leading syphilologists of to-day, I will state that I still entertain the opinions as then expressed, and will not retract one iota of what I then said. On the contrary I will endeavor to show to the full satisfaction of my hearers, that I was not hasty in my expressions of opinion, but "knew whereof I spoke." And the more I study and investigate the subject, the more fully am I convinced of the soundness of my position.

Having been appointed to read a paper at this meeting, I will take for my subject, "Tertiary Syphilis Therapeutically Considered."

I am well aware that there are some who have not as yet fully awakened from that Rip Van Winkle sleep which still seems to obscure their mental vision, and who are so far wedded to old and long since exploded theories, that any efforts which might be put forth to enlighten their *benighted minds* would be but a waste of time and breath. To all such I would say: "They are joined to their idols, let them alone!" It is to be hoped however, that it will not be very long before the *scales* will drop from their eyes, and they will awake to a full realization of the fact, that they are far behind the times, that they are living in an age of scientific progress, and that the "golden age of medical science" is now for the first time dawning upon their *benighted vision.* "Behold, old things have passed away, all things have become new." It is to *thinking minds*, those who reason *rationally* and *philosophically*, that I wish to address what few remarks I have to make on this subject.

There is, perhaps, no branch of medicine or surgery which has undergone a greater revolution during the last quarter of a century, than the pathology and treatment of syphilis. The treatment which seems to have been in vogue from the earliest times, namely: that mercury was a "specific" in all stages of this disease, has recently undergone a great change, and very many of the ablest syphilologists of to-day, have modified their opinions very materially on this point; and entertain very serious doubts as to its efficacy *at all* in this disease, being of the opinion that it is *self-limiting* in its action on the human economy, and can be more successfully managed *without* mercury than *with* it—in other words that the *remedy* is *worse* than the *disease itself*. Every physician of experience, knows how little mercury is now given in any form of disease, in comparison with the immense quantities formerly given—and it is the opinion of many very eminent in the profession, that it is a very dangerous remedy, greatly to be feared, and should be administered with great caution, as its effects are often worse than the disease itself. So has it been regarded by those who formerly considered it an eliminator of the syphilitic virus from the blood—those who were its earlier champions, have modified their opinions very materially on this point of late years.

While I will admit at the very outset of my remarks, that mercury is undoubtedly efficacious, (when judiciously administered), in the primary and secondary forms of the disease, when the system is in a moderately fair condition, I claim that in the *tertiary* form, where the blood has become chloro-anemic, and great structural lesions of the osseous system has taken place, its use should be *condemned*, and I am satisfied that *science*, as well as *experience* will sustain me in my position.

I do not propose cumbering your minds by quoting from authors long since obsolete, whose finely spun theories will not bear the test of scientific scrutiny, and which have long since been consigned to the tomb of the Capulets—but will quote from *modern* authors, for I claim that the pathology and treatment of syphilis has undergone a complete revolution during the last quarter of a century, and hence old authorities will have but little, if any weight in moulding our opinions as to the real pathology and treatment of syphilis at the present time.

In the first place I would ask—what do we understand by tertiary syphilis? Affections of the periostrium and bones belong to the latter order of tertiary syphilis, and they may declare themselves in various forms, of which the most important are nodes, or soft tumors, inflammatory hypertrophy, exostosis, caries, and necrosis. These affections may come on at any time after the eighteenth month, from the date of the primary sore, but in the great majority of cases they do not show themselves until after the lapse of twice that period. They are more liable to occur in persons of scrofulous and cachectic constitutions, and in those whose health has been impaired or destroyed by habitual intemperance, excessive use of mercury, constant exposure, and deficient alimentation, leading to an impoverished condition of the blood, and protracted derangement of the secretions.

Says Prof. Gross: "The idea is now generally prevalent, that diseases of the periostium and bones, especially in their more severe forms, are in a great measure limited to those persons who have undergone severe courses of mercury for their cure! and in this *opinion the results of my experience induces me fully to concur.* Of the many cases of *tertiary* syphilis of the osseous tissues that have fallen under my own observation, *nearly all* had taken mercury in large quantities, and the few who had been treated without mercury had suffered comparatively little—except where there was a marked strumous diathesis, which never fails to aggravate the effects of the ingrafted disease. It would thus appear, at first sight, that this metal, by combining with the specific poison, was capable of essentially modifying its action, if not of forming a new virus, more potent and destructive than the original. But it is not necessary to have recourse to such an explanation—it is sufficient to know that the action of mercury, when carried to excess, is a most powerful depressant, the effects of which is felt for a long time by the whole system, by the blood not less than by the solids. A species of physical degeneration of the entire organism is thus engendered, which strongly predisposes it to the injurious effects of morbific agents, whether acting within the system, or impressing it from without, through the medium of the cutaneous and mucous surfaces. It will be found to be in accordance with the established facts of pathology to conclude that the frightful ravages so often committed in *tertiary* syphilis, after the inordinate use of mercury, upon the osseous tissues, are the result exclusively of the deteriorating influence of this metal upon the general system, whereby the more badly organized structures, as the bones and their investing membrane, are rendered peculiarly liable to a bad form of inflammation, which if not early checked often leads to most serious consequences." Tertiary syphilis is met with only in certain bones chiefly in the superficial, or those protected by soft parts. As tibia and fibula, the ulna and clavicle, and bones of the skull, nose, palate and upper jaw.

What is the physiological action of mercury upon the system when taken for any length of time? Is it not a fact, demonstrated beyond contradiction, that its effects are not identical with, but very analogous to syphilis itself? And herein lies the great danger in the too indiscriminate use of this potent drug. After its absorbtion, mercury produces several important changes in the quality of the blood. Upon the establishment of salivation, the blood exhibits an inflammatory crust; but at a later period it loses its color and consistency, and coagulability; and the proportion of fibrin and serum becomes very much diminished. This is termed the "auto-plastic" action on the blood, which renders it a valuable remedy in inflammatory conditions. When, however, the use of mercury is pushed too far, as is very often the case in the treatment of syphilis, in its different forms, or is administered to persons peculiarly susceptible to its action, a train of very serious symptoms ensues—as excessive salivation, ulceration of the gums, and mouth, loosening of the teeth, and necrosis of alviolar processes. A peculiar febrile condition, called *mercurial fever*, diarrhœa, skin diseases, neuralgia, rheumatism, diseases of the nervous system, and marasmus, and other symptoms which are frequently noticed after the abuse of mercury—and while its use may be admissible in some cases, in the primary and secondary stages of syphilis, when the system is in a tolerably fair condition; in the tertiary form of the disease, when the blood has become "chloro-anemic," and great structural lesions have taken place, it is not admissible.

What is the condition of the system in tertiary syphilis? Is not the whole system diseased? The blood, as well as the osseous structures are in a deplorable condition. The blood is thin, and anemic, there is a deficiency of the red corpuscles, in other words it is defibrinized, and is not in a condition to keep up a healthy action in the economy. The bones have become soft and brittle, emaciation is in many cases rapid, the muscles have lost their tone and elasticity, the appetite is capricious, and in many cases absent entirely, and a general letting-down of the system sooner or later supervenes.

Are *these* the *kind* of *cases* some would try to make us believe require *mercurial treatment?* Could anything in the name of heaven, be more preposterous and absurd? Advise a remedy whose effects upon the system are very analogous to the disease itself? As well might we advise venesection, in the last stages of typhoid fever, or phthisis pulmonalis, when the patient is on the very verge of the grave. The one would be just as rational as the other.

All of us who have had any experience whatever in the treatment of tertiary syphilis, knows that the general system is in a lamentable condition. In many of these cases the patients are walking skeletons, living masses of disease, having had one foot in the grave for a long time? Must we go on breaking down the blood and tissues, and destroy what little vestage there may be left whereby the system may be recuperated? What utter folly and madness! We do not certainly reason in this manner in our treatment of other diseases. Why then make an exception in this case? But some may say that mercury is the best eliminator of the syphilitic virus in tertiary syphilis. Where they get their authority for such a position I know not. It is certainly in direct antagonism to the views as promulgated by the ablest syphilologists, in our own country as well as in Europe to-day—and I will prove it to you by quotations from their writings before closing my paper.

What, I again would ask, is the effect of mercury upon the system? Is it not universally admitted to be a most powerful depressant—a defibrinizer of the blood, a remedy which breaks down the system, rendering the blood anemic and thin as water, and producing a baneful effect upon the entire osseous as well as fluid structures of the body? I appeal to you gentlemen as reasoning beings, and not as automatons. Such treatment is contrary to the teachings of experience as well as to science and reason. No! there is a more rational treatment than that for this terrible disease. If we accept that theory, why not turn homeopathists at once, for it would be most certainly carrying out their dogma to the very letter, namely: "*Similia, Similibus Curantur!*"

Ah, but some may say that mercury should be given in very small quantities approaching only to slight ptyalism, and in this way its bad effects will not be so perceptible. Those who thus reason lose sight of the fact (as proven by physiological experiments) that when structural lesions have taken place and the blood has become impoverished (as is the case in tertiary syphilis) that mercury is illy borne and that it takes but little of this potent drug to produce very serious disturbances in the system. And amounts which might be readily borne in the first and secondary stages of this disease with comparative impunity, in the tertiary form would not be admissible even in very small quantities; such has been the experience of many army surgeons in their treatment of this disease during our late civil war.

The "mixed" treatment is also advocated by some, but it is very questionable whether this mode of treatment does not complicate rather than help the condition of things. Whether by the ingrafting of this new disease it does not render it a much more difficult matter to eradicate the virus from the blood, and in this way render the patient's condition worse instead of better. These are grave questions, and have not received that care and attention which they justly deserve at the hands of the profession.

If then, mercury is not admissible in the tertiary form of this disease, what, I would ask, are we to rely upon mainly in our attempts to eliminate this terrible poison from the blood? I reply, by commencing at once to build up the system, rather than tear it down. How can this best be accomplished? By the administration of tonics, nutritious diet, exercise in the open air, and by a careful attention to the general health of the patient. Our materia medica is overflowing with remedies suitable for each and every case. Quinine and iron are two of the very best, and iodide of potassium is *par excellence*, our sheet anchor in the treatment of tertiary syphilis. It approaches nearer to a perfect eliminator of the syphilitic virus, than any remedy in our materia medica—mercury not excepted. In fact, it has superseded the use of mercury in a great measure in the treatment of the primary and secondary stages of syphilis. It eliminates the poison, and does not produce those deleterious effects upon the system which almost invariably follow the protracted use of mercury. This remedy is universally admitted by all writers upon tertiary syphilis, as the main remedy to be relied upon. Tonics, as well as a general supporting treatment are of course to be carried out in conjunction with it. Cod-liver oil, and the hypophosphites, are recommended by some able authorities.

Let us see for a few moments what some of our leading authors say on the subject of tertiary syphilis,—I of course in a paper of this kind, can give you but a hasty glance at the positions taken by a few of the most prominent among them,—says Niemeyer, in his scholarly work on the "Practice of Medicine": "The secondary and tertiary symptoms of syphilis must always be treated with the utmost circumspection, since there is no disease in which therapeutic errors can do so much harm as in constitutional syphilis. The indications for mercurial treatment of constitutional syphilis have generally been summed up as follows: the secondary affections generally alone require mercury, while the tertiary accidents demand the use of iodide. Mercurials are indicated in nearly all cases where the affection belongs to the secondary group, while in case of a manifestly testiary character they are contra-indicated. If the relapse be unmistakably of a tertiary character, or if it be merely of an intermediate nature between the secondary and tertiary form, or if the constitution of the patient have begun to suffer, whether from the disease or the treatment, then mercury is not only contra-indicated, but *even dangerous*. Never use a *grain of it* under such circumstances and I am certain that by such precaution the evil effects of mercurial treatment may be arrested." He advises the use of the iodides in the treatment of tertiary syphilis, recommends the syr. iod. iron as his favorite prescription, also iodide of potassium alone or combined with other remedies. Says Dr. Aitken in his work on practice: "It is now quite certain that mercury, administered constitutionally to the extent of salivation or even approaching it, exerts a powerful poisonous influence and produces constitutional effects very similar to those produced by syphilis." And Hunter himself says: "New diseases arise from mercury alone." While it cannot be doubted in cases in which mercury had been given, we are never certain that secondary symptoms may not supervene." Barensprung, of Berlin, during his most extensive experience has come to the conclusion that syphilis can not only be cured without mercury, but he avows that under its use the disease is often rendered latent for months, and even years, and its complete cure delayed. He is of the opinion that mercury deteriorates the constitution, and favors the development of destructive local affections. The non-mercurial treatment is slower but surer. He believes that the proportion of cases of constitutional syphilis has been greatly diminished since mercurial treatment has been discontinued.

Herman, another very celebrated German author, has come to similar conclusions from his extensive experience in the wards of the Vienna Infirmary. "He believes that the non-mercurial treatment is much more speedy and permanent than the mercurial; that no relapses occur, and that cutaneous eruptions is more frequent and severe in patients who have taken mercury."

The experience of Diday, the celebrated French author, is not less decided. He says: "That mercury cannot now be said to *cure* syphilis, radically, so as to render all relapse impossible. Its warmest advocates do not at the present time, claim more for it than the power of delaying only the appearance of the first syphilitic manifestations, and of hastening the disappearance of certain other lesions. He imputes to it positively and on sufficient clinical evidence the following disadvantages: First, it tends to render the primary sore phagedenic. Second, it tends to induce stomatitis and necrosis of the alveolar borders. Third, it produces an acute affection of the gastro-intestinal mucous membrane and dyspepsia. Fourth, it brings on trembling of the extremities, apoplexy, and insanity. All of these he has seen supervene, even when the treatment by mercury was superintended and directed by the *most competent and attentive practitioners.*"

Says Prof. Bumstead, in his valuable work on venereal diseases—"Mercury, when given at the commencement of tertiary syphilis cannot as a general rule be supported, and rarely fails to aggravate the disease. By the use of the iodides however, the patient gains almost immediate relief from suffering, his appetite improves, he gains flesh and strength. Says Prof Gross: "The treatment of tertiary syphilis reposes on *broad scientific and philosophical principles*, and may therefore generally be pursued with a positive certainty of affording great relief, if not of ultimately affecting a radical cure—even the worst cases may be usually immediately benefitted, in a very short time under the modern system of practice. And I have repeatedly seen patients apparently on the verge of the grave who had not enjoyed a comfortable night's rest for years, and where bodies had been sadly deformed and racked by pain raised to health and usefulness, again, by a few doses of medicine. The remedy to which we are indebted for these wonderful effects is the iodide of potassium, which if there is such a medicine as a *specific*, is unquestionably entitled to that distinction." Says Dr. Aitkin, in his comprehensive work on Practice: "Both kinds of treatment (mercurial and non-mercurial) have been extensively tried, since

1816 and formal experiments have been organized on the subject namely: First, in 1822 in Sweden, by Royal Command, where reports were annually furnished from civil and military hospitals as to trials of the two methods. Second, Dr. Frickle experimented in the "Hamburg General Hospital," and published his results in 1823. Third, in 1833 the "French Council of Health" published a report on the subject. From all these accounts more than 80,000 cases were submitted to experiments, and they go to show that syphilis is cured in a *shorter time*, and with *less chance of constitutional effects*, by the *simple* than by the *mercurial* treatment." It is extremely interesting and gratifying to know and to be able to say, that long before any of these reports were initiated, the surgeons of the British Army perceived the ravages of the combined poisons of mercury and syphilis, and had the boldness to declare themselves *against* the system of treatment with mercury and to introduce the milder measures of *non*-mercurial treatment. The credits of this improvement is mainly due—(1), to Mr. Ferguson, who practiced it during the Peninsular Wars. (2), to Mr. Rose, of the Coldstream Guards, at the same time, but independently of Mr. Ferguson. (3), to Dr. John Thompson, the first Professor of Military Surgery, who, by lectures in the University and College of Surgeons in Edinburgh, and by his published writings, was mainly influential in convincing Scotch medical men, of the evil effects of mercury in venerial diseases."

The eminent Dr. Graves, of London says: "That mercury when administered constitutionally exerts a poisonous influence, and produces constitutional effects very similar to those produced by syphilis." He depricates its use, claiming that the *milder alteratives* are far preferable to it. Prof. Bumstead also says in connection with the treatment of syphilis: "The power of nature to cure syphilis should never be lost sight of in treatment of this disease. Experience long since has shown that specific remedies, in order to be of any avail, must not be pushed to the detriment of the general health, or be administered *at all* when the system is generally depressed, otherwise, the disease will acquire a firmer hold, and the patient's condition be rendered worse instead of better." He also says: "That syphilis even without treatment will frequently terminate *spontaneously*, and leave no permanent injury to the general health, or impairment of any organ."

If this be true, why then not trust to the "vis medicatrix naturæ," in conjunction with the mild alteratives, rather than give mercury, and bring about a worse condition in the system, in many cases, than that produced by the disease itself? "Avoid doing any harm to the system," is an old but true medical maxim, and if its teachings were followed more closely by many medical practitioners at the present time, the evils of "over-medication" might in a great measure be done away with; "over-dosing" is the crying evil in our treatment of diseases; we don't trust nature half enough, but rely too much upon our remedies. Herein lies the secret, in a great measure, in the treatment of diseases among the "Homeopathic school of Medicine." They "let nature alone," in most cases claiming that she is abundantly able to work a cure in nearly every case, without remedies, and if they are used at all, those which can do the least harm are the ones to be selected. The idea that all diseases are "self-limiting" in their action on the human economy, is gaining ground every day among the oldest and foremost thinkers in the medical profession, not only in our own country but also in Europe. Shall we accept or reject it, is the question each and every one must determine for himself. Prof. Bumstead says: "Who has not been disappointed and chagrined at the return of syphilitic symptoms, after the most thorough course of treatment? But, may it not be that nature is still carrying on the work of cure, which will be brought to a happy conclusion at a time which art can no more master than it can arrest progress of an eruption of variola or scarlatina? In short we cannot admit, especially with the evidence existing to the contrary, that the vital powers afford a certain amount of protection against all other diseases, but are impotent against the ravages of syphilis, and a proper appreciation of these views will not render the surgeon inactive, but will, by holding out a better hope of success, induce increased efforts."

Record, in the treatment of tertiary syphilis relies almost exclusively upon iodide of potassium, administered in doses of from five to thirty grains three times a day. (Bumstead on venereal diseases, page 597).

Prof. Gross says: "Experience has shown, that iodide of potassium is capable of performing for tertiary syphilis what quinine does for intermittent fever, or arsenic for neuralgia. It is *the remedy par excellence* in *tertiary syphilis*—a modern remedy of stupendous consequence to the human race; a remedy *without* *which* it would be impossible to treat disease with any prospect of success in almost *any case, however simple.*"

I would like to quote from many other leading authors but fear I have already taxed your time and patience entirely too long. In summing up the positions taken in this paper, the following conclusions seem to be established :

First. That in some forms of syphilis, that is in the primary and secondary stages, mercury is admissible, although it is not really essential in these forms, as it has been shown by some of the most eminent modern syphilologists, that the disease will, if let alone, get well without mercury, and that in very many cases, a more *permanent*, and *radical cure* is thus obtained than if an early use of mercury had been resorted to.

Second. That in persons of a scrofulous or strumous diathesis, mercury is never admissible, in any stage of the disease, the result of the newly engrafted disease tending only to aggravate it.

Third. That in the treatment of the tertiary form of the disease, namely, when the blood has become chloro-anemic, and great structural lesions have taken place, mercury is *contra-indicated*, as its administration only tends to *aggravate* the *disease* ; while a *nutritious diet* and *supporting treatment*, together with the free administration of *iodide of potassium*, are our *sheet anchors* in eliminating the syphilitic poison from the blood.

Fourth. That it has been demonstrated that mercury is " *not* an eliminator of the syphilitic virus in tertiary syphilis" but that there are *other* more potent drugs in our materia medica, whose therapeutical effects upon this disease are far superior to it, and in the great majority of cases the effects of mercury upon the system are more potent for evil than the disease itself. In conclusion I would say, that if I have been the means of throwing any new light upon this vexed question of syphilis, or have succeeded in turning your minds into new and heretofore unexplored channels of thought as to the true and only scientific way of treating this disease, I will consider myself more than compensated for my time and trouble in preparing this paper.

We should always bear in mind, that disease is not an entity, a positive thing, nor an excess of action or manifestation of life, but a deficiency or partial death. Almost all diseases are due to the withdrawal more or less complete, of that vital control by which the unity of the body is maintained. The function of the true physician is not to take away, diminish, or weaken life, but to add to, assist, or renew it. This view of disease is different from that anciently received, and with it has arisen new modes of treatment. We are now merely humble assistants in nature's curative efforts, instead of armed champions warring against terrible demons let loose in the body. In proportion as we recognize the point at which the first departure from health commences, shall we be able to prevent unnatural action, and thus oftentimes succeed in restoring health before any great disturbance of function or destruction of tissue has occurred. The old-fashioned way of treating diseases was to use "heroic remedies!" and the doctor, when called in consultation, felt bound to distinguish himself by ordering stronger remedies than his predecessor had done. Many old-fashioned people, who have been accustomed to physic themselves and their neighbors, think when their own means have failed: "It's no use calling in the doctor!" "I've blistered myself, and taken calomel, and laudanum, and there is nothing stronger to be tried." While the fact is, the skilled hand employs gentle measures, the more skilled, the more gentle; and will accomplish in cases, what "knock-down" treatment has failed to do.

It is a pleasing thought to my own mind at least, to know that the days of "pouring down calomel" for every disease which flesh is heir to, has already become a thing of the past, and that a new era, not only in the treatment of syphilis, but of all other diseases, is now dawning upon the medical world.

It is an old saying that "operations are the opprobrium of surgery;" and it may be said with equal truth that "drugs are the opprobrium of medicine; and it is astonishing how much can be accomplished by the enlightened attendant without their intervention.

It is related of the great Dr. Abercombie at the close of a very long and brilliant career in the practice of medicine: "That it was his honest conviction, from the most careful and mature deliberation, that the whole science of medicine could be written upon a half sheet of paper"—and while this statement may seem at first sight a little extravagant to most of us, I doubt not but that in point of fact he was correct in what he said.

Let me not be understood as discountenancing the use of medicines entirely—far from it—no one has more faith in their efficacy, when judiciously administered, than myself. It is this "wholesale;" or promiscuous prescribing of remedies, when their use is not required—is what I wish to impress upon your minds as reprehensible in the highest degree. It is often a very nice question to decide, just where to give and when to withhold medicines, and he who is most competent to carry into practice these nice discriminations, approaches nearest to the ideal of what constitutes the true physician.

Will *we* then, as members of the great medical profession in this enlightened nineteenth century, accept as *settled facts*, the positions taken by some of the profoundest thinkers in the medical world to-day—namely: that most if not all diseases are "self-limiting" in their action on the human economy, and require but *little medication*—or will we still hug to our bosoms, more closely than ever, the long since "exploded theories of the past."

Art. 6.—Diseases of the Rectum. Degeneration of the Anal Sacculi.

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No. V.

In the anatomical remarks which introduced the subject of Fissure of the Anus, reference was made to the sacs which exist at the lower parts of the sulci, that are to be found between the adjoining columns, at the termination of the rectum. These columns were said to be most distinct just within the anal orifice, where the compression exerted by the sphincters was greatest. In number, these columns vary in different individuals—occasionally not more than from four to seven are apparent, but generally there are from nine to thirteen to be counted. If the observer will trace carefully the course of the sulci to be found between the projections of the mucous membrane, he will find that they end inferiorly in lacunæ. which are located immediately below the lower margin of the internal sphincter. At this point membranous folds of a semi-lunar form can be seen, the number of which will correspond with that of the grooves themselves, which close the sulci internally and convert the depressions between the columns of Morgagni—as these projections on the inner aspect of the rectum are called—into lacunæ, which are from two to seven lines in depth. The mouths of these little pit-like cavities are on the same level, and in health, their orifices can be traced easily around the anus. These little sacculi contain mucus, which exudes when pressure is made in their neighborhood. So far as the personal observations of the writer extend, no amount of distension of the rectal outlet suffices to obliterate the columns of Morgagni,—the fibres from the external longitudinal layer of muscular tissues of the rectum, which curve around the inferior margin of the internal sphincter, and ascend on the inner aspect of that muscle before attaching themselves to the mucous membrane, contributing to the stability of these structures — yet even a slight amount of dilatation of the anal outlet suffices to empty the sacculi which fringe the anus. It occasionally happens, in cases of acute congestion of these parts, in patients suffering from hæmorrhoidal growths, that the hyperæmia stimulates glandular action to such a degree, that the secretion from these sacculi becomes a very striking phenomenon. The flow of mucus, which, in chronic cases, marks the subsidence of inflammatory action when prompt measures have checked the progress of an intercurrent attack of hæmorrhoidal congestion, and prevented suppuration, has its origin in the stimulus that has been communicated to the glandular structures of the anal sacculi. Without entering upon a discussion of the physiological office of these organs, it will suffice to say that, from the nature of the secretion, the time and circumstances most favorable for its discharge, and the situation of the lacunæ themselves, the inference is almost irrisistable that the office performed by the fluid they produce is a mechanical one, and that it serves to lubricate the anal orifice, and facilitate the discharge of such matters as are evacuated through the anal outlet.

These minute sacculi are not infrequently the subject of disease. The distinguished Dr. Physick, of Philadelphia, devoted great attention in his medical lectures to the affection which implicates these little sacs — the pathological character of which he was the first to recognize and describe, — but with the exception of Coates' article on the *anus* in Hays' Cyclopœdia of Practical Medicine and

Surgery, and a chapter in Gibson's Surgery, there has been very little written on this particular complaint. In order to define with clearness the clinical characters of the affection, I will detail the history of several of the patients who have come under my care at different times, suffering from this form of disease of the rectum.

The following are the essential points in the history of the case of a gentleman who came under my care in 1871: The patient was a clergyman by profession, and had a church in a small city, not far from New York, until a few months before consulting me, when failing health compelled him to resign his charge. In 1863 he suffered from the cerebral and mental derangements incident to over-work, but after rest, foreign travel and mental relaxation, continued for a length of time, he seemed to recover completely. This relief continued for two years after his return to the pulpit—he then became conscious of what he called vague neuralgic pains, all over his body. If he exposed himself too much to the sun, he would be prostrated for several hours with severe pain over his eyes; if he walked more than usual, the pain would be in his back and legs—he was quite sure that at first the pain always attacked the part that had been most exposed. From the very beginning, one of his most distressing symptoms was a severe itching of, and occasionally a sharp pain in the fundament. His bowels, previously rather hard to move, became free, but each passage was succeeded by a dull aching in the anus, and a feeling of profound depression. One pleasant day, after walking more than usual, he returned feeling chafed. A hot hip-bath gave him temporary relief, and after drying the parts carefully, he dusted the nates with rice-powder. An hour or so subsequently, itching came on, and although he resorted to all sorts of remedies, nothing gave more than temporary relief. This was in August, 1869. When he came under my observation in March, 1871, he said that during the intervening period he had suffered untold agony from itching and pain in the anus. It seemed, he said, as if all the vague, fleeting pains he had suffered from before, had located themselves in the terminal portion of his alimentary canal, and were in a state of constant activity. When I asked him if there was any period of the twenty-four hours during which he was free from these troubles, he at first answered there was not, but immediately qualified his reply by saying that there were hours each day when he was worse, but none during which he was entirely free from irritation. When warm in bed at night, his symptoms were aggravated—it was not until completely worn out with the irritation, and exhausted by fruitless efforts at relief, that he would fall asleep. His bowels would move a dozen times a day were he to permit it—he restrained them all he could and by this very effort he thought he contributed to the morbid mental and physical condition from which he suffered. If he allowed his bowels to run off, he would have a number of teasing, painful evacuations, and each motion would be followed by an increase in the sensation of heat and burning in the rectum, which tormented him, until sharp, shooting pains, starting from the fundament and darting down both legs, would come on, and compel him to resort to an opiate for the relief of his "diarrhœa." There never had been any injury to the part, careful inquiry failed to reveal anything like the characteristic pain of anal fissure, there was no evidence of spasm of the sphincters, and no history of either hæmorrhage or hæmorrhoids. About six months before I saw him, and at a time when there was considerable irritation of the anus, induced by scratching, he had a severe attack of retention of urine, with evident spasm of the urethra. Unless he lived upon the blandest diet, and regulated the action of his bowels with great care, he was liable to sudden, spasmodic evacuations of the contents of the large intestine. This symptom compelled him to resign his charge, for his power of retaining the contents of his rectum finally became so insecure, that it was not safe for him to enter the pulpit.

Inspection revealed a thickened state of the cutaneous folds which arise from the verge of the anus and lose themselves in the adjacent integument, but there were none of the circumscribed elevations of the skin, with thickening of the sub-cutaneous structures, which characterize the more common forms of external hæmorrhoids. The little gullies between these folds were deeper and more moist than natural; the skin was red and seemed to have been greatly irritated by scratching. Pressure near the anal verge caused a slight amount of viscid secretion to exude from the anus. When the patient exerted himself to "bear down," the parts about the anus were rendered quite moist by a free flow of liquid from the rectal cavity, and the mucous membrane at the back part of the anal outlet rolled out in a mass the size of a small chestnut. This protrusion of the lining membrane of the rectum resembled, in appearance, a large internal hæmorrhoid, but on close inspection, its mucous investment was found to differ widely from that which covers that variety of rectal growth. Again, when pressure was made on this protrusion there was an increase in the quantity of of moisture which bedewed the parts, and—when the latter flowed freely—the former was markedly diminished in size. But little reristance was made by the sphincters to the entrance of a finger into the rectum. When the enlargement at the back part of the anus was grasped between the finger in the rectum and the thumb of the same hand, its attachment by one side to the adjacent structures was rendered apparent. Pressing the point of the thumb firmly against the most dependant portion of the enlargement, caused a free gush of thick mucus, and made the growth collapse. Rubbing together the thickened walls of the evacuated cyst, showed that their internal surfaces were rough and irregular, while forcible traction brought into view the swollen mouth of the short infiltrated canal which led from the sulcus between the two adjacent columns of the rectum, into the enlarged cyst that occupied the site of a former sacculus. Bending a probe properly, its point was passed along the sulcus, through the canal and into the cyst. The impression communicated to the sense of touch, by rubbing the walls of the evacuated cyst together, was directly at variance with that derived from the exploration of its cavity with a probe. The idea of thickness and roughness given by the former, was shown by the latter not to exist, at least, in the inner wall. Not only was the probe felt readily when in the cyst, but the parietes of the latter were found thin and semi-transparent. Passing the probe into the cyst gave rise to no great irritation. The circumference of the anus, on its inner aspect, was carefully explored with the probe, bent like a hook, but only one other sacculus was found enlarged. This was situated to the right side of the anus; the probe sank to the depth of three-quarters of an inch; and externally, its site was rendered apparent by an enlargement, perceptible to the touch, which felt as if a foreign body, the shape of a grain of corn, was under the mucous membrane. When the probe was passed, a slight amount of mucus exuded, and the point of the former could be felt immediately beneath the lining membrane of the part. The patient complained more of pain when probing the small sac, than when exploring the larger one.

My attention was at one time called to the case of a young girl of twelve years, who, for years, had suffered from accumulations of the thread-worm (*oxyuris vermicularis*) in the lower part of her rectum and who, although some time had elapsed since the last appearance of her former troubles, had continued to suffer from the distressing itching which was originally supposed to be due to aggregations of the parascites. The paroxysms of itching had been almost intolerable from the first, but of late there had been added to her previous symptoms of rectal irritation a sharp, lancinating pain that came on when the itching was most intense, and which would shoot up the spine and down the thighs with lightning-like rapidity. If I remember correctly, this peculiar pain had not been in existence more than two months, when the case was referred to me for examination. All sorts of local applications had been advised to allay the itching, and prevent the mechanical irritation to which she resorted for relief. I was informed by the patient's sister that the unfortunate girl would scream at night, whenever the shooting-pains came on; and that they had noticed that the latter were much less likely to develop when the patient was able to control herself sufficiently to resist the temptation to scratch the part. A careful inquiry was instituted, and all the facts bearing upon the history and character of the complaint were obtained from the patient and her friends. There was nothing ascertained relative to disease of the rectum, further than what has already been detailed. Her bowels were regular, and their daily action seemed to soothe the irritation about the anus. She never had any symptoms of acute articular rheumatism, or of chorea; the sensibility of the integument of the lower extremities to impressions of contact, tickling, pain and temperature was normal, and equal on the two sides, while her ability to stand and walk with her eyes closed was unimpaired—in short, there were no symptoms except those already related, and no other organ than the rectum appeared to be at fault. An examination revealed great irritation of the parts at the anal outlet. There was an increase in the secretion of the glandular structures in the neighboring tissues; the naturally thin, delicate and elastic structures about the anus were unnaturally hot, thick and leather-like to the touch. The follicles from which sprang the hairs at the verge of the anus were enlarged, and the individual hairs felt as if embedded in a hard, shot-like mass. When any part of the fundament was touched, the rectal orifice contracted spasmodically, and the anus, instead of its natural excavated appearance, looked like a nipple-shaped projection on a flat surface. The spasm soon ceased, however, and the real outline of the anus became apparent. The opening into the rectum, instead of its normal circular form, with radiating folds of skin centering at that point, presented a semi-lunar outline, the two horns of the half-moon shaped orifice being directed to the right, and partially embracing a circular projection the size of the end of the little finger, which appeared to arise from the mucous membrane of the lower part of the intestine, just above its junction with the integument. When the sphincters contracted, a portion of this enlargement was apparent, but it was only when the part was quiet, and the margin of the anus dilated, that a good view could be obtained. The sphincters were not hypertrophied, and the finger in the rectum failed to discover any morbid change in the walls of that organ. By pressing the enlargement at the anal outlet, between the exploring finger and the thumb of the same hand, a little viscid fluid could be made to emerge from the anus, and the projection became decidedly smaller. By carefully exploring the sulci between the columns of the rectum with a curved probe, I succeeded in introducing the point of the latter into the cyst, and was enabled to evacuate the greater portion of its contents. The internal wall of the sac was then found to be thin, but there was a very decided impression of roughness and irregularity, communicated by its lining membrane, when the probe was moved about in its cavity. None of the other sacculi were diseased. Careful inquiry was made in reference to any peculiarity in the action of the bowels, but none could be elicited. Her sister informed me that of late there had been a tendency to involuntary evacuation of the contents of the bladder, and that this symptom was much worse during warm weather.

The peculiar pains occasionally met with in these cases—pains which, as we shall see hereafter, are not limited to patients suffering from degeneration of the anal sacculi—have not infrequently led to a total misconception of the character of the patient's disease. A striking illustration of this fact was the account given of his own case by a gentlemen who consulted me in 1870. Living in Elizabeth, New Jersey, and transacting business in Murray Street, New York City, he was compelled to catch certain trains, daily. In order to do so, everything not necessary in a business point of view, was compelled to conform to this requirement. He thus got to neglecting his bowels, to eating in undue haste, and to reading his daily paper on the train. According to his own version of the matter, he was a person always "anxious about himself," and consequently, after such habits had grown upon him for a length of time and he found that he could not read without glasses, that his food did not digest and that his bowels were developing a tendency to constipation, he became very much alarmed, and devoted a day or two to the task of consulting a number of physicians. One of his intimate friends, a New York merchant, residing in Elizabeth, had been recently prostrated with disease of the spinal cord, and this circumstance had a certain influence over him, for he consulted several of the physicians who had been called to see his friend. The sufferings of the latter may unconsciously have given color to some of the symptoms of the former. Thus, at the time I saw him, his greatest suffering was caused by pain in the small of his back, together with a difficulty in urinating. The former was almost constant—his intervals of greatest ease were immediately after evacuating the contents of the bladder; while the latter came on during micturition, and consisted of a sharp pain which started from the base of the bladder, and passed to the head of the penis, in one direction, and up the spine, around the waist and down the lower extremities, in the other. A constant distressing sense of uneasiness, more than actual pain, had been located in the small of his back for many months, but he had paid little attention to it, until the trouble with his bladder and the peculiar pain just alluded to, were developed. The latter came on suddenly. Immediately after his friend's attack of paraplegia he had remained with him a number of nights, and his wife finding that he was somewhat disturbed by his friend's misfortune, thought to cheer him up by inviting a number of their acquaintances to an informal dinner-party, on the thirty-ninth anniversary of his birth-day. This came early in June, 1870. The gentleman enjoyed the festivities greatly, and ate and drank much more than was his general habit. About three o'clock, the following morning, he was aroused by an urgent desire to urinate. When his bladder was nearly empty, he was seized with a sharp pain behind the pubes, which in a moment passed from that point to the head of his penis, and thence radiated up his spine and down his legs. After he was helped to bed, he vomited freely, and gradually grew easier. When the physician arrived who had been summoned when he was first attacked, he found the patient warm in bed and easy in every respect, save a most distressing itching at the anus. This symptom had been a troublesome feature in his case ever since he began to suffer with constipation. I saw the patient in August and then learned that pain in the back had become an almost constant feature of the case, and that during micturition, it was aggravated by the pain which radiated from the bladder to the penis, spine and limbs. The itching of the anus, the patient said, although very troublesome, and at times almost excrutiatingly severe, was as nothing to him compared with the symptoms which he felt sure were but the fore-runners of paralysis of the lower extremities. He had consulted several medical men before I saw him. By one gentleman he had been sent to a surgeon, and the latter explored his urethra and bladder, and assured him he had neither stricture nor stone. The frequency with which he was asked in reference to the existence of a sensation such as would be produced by a band around the waist, turned his thoughts in that direction, and, as he told me in response to the same question, he was not certain but what there was some such feeling. Careful investigation failed to reveal any impairment, of motorial or sensorial power in any portion of the frame; he denied having had either syphilis or rheumatism; and gave no history of any genito-urinary disorder. Having explained to the patient the necessity of an investigation into the state of the prostate gland, I prepared to make an examination *per rectum*. When the arrangements for the latter were completed, an inspection was made of the anal region. The integument about the anus was in that condition which continued mechanical irritation always excites—it was red, infiltrated and moist. Separating, carefully, the margin of the opening into the rectum, and, when the spasm of the sphincters had somewhat subsided, directing the patient to make forcible "bearing-down" efforts, a very peculiar state of the parts just within the line which joins the integument and mucous membrane became apparent. This was a ring of spherical projections that extended around the inner aspect of the anal orifice, and at a certain point in the dilatation of the latter, this aggregation of nodules seemed to fill completely the opening leading into the rectum. A thorough investigation revealed the fact that of the eleven sacculi to be found between the columns of Morgagni, eight were in a state of disease—the diseased sacs were enlarged and more or less distended with viscid secretion. Several of the diseased sacculi looked like small, ripe grapes, and before the sinuses leading to them were probed, they felt like large shot embedded in the tissues. After probing two of the cysts, and evacuating their contents, the patient cried out that he was going to have a paroxysm of pain, and at his request, was assisted to a sofa. The pain was apparently very severe; it came first in the body of the penis, soon implicating the head of that organ, and then passing to the small of the back, and down the thighs and legs. He was in pain between three and four minutes; when he announced that he was getting easier, his body became covered with a cold, profuse perspiration, and he began to scratch the anal region most furiously. One singular point connected with this feature of the case was, that the patient did not seem to want to pass water, although he was frequently spoken to in regard to vomiting.

I shall have occasion to refer to this case again, when treating of the influence of local disorders of the parts about the outlet of the rectum in simulating the phenomena of disease in other, and it may be distant, parts of the organism. It is of especial interest at present as an illustration of the fact that the symptoms which ordinarily are indicative of the existence of a particular disease, may be completely overshadowed by reflex phenomena, and that too, at a time when there are no other physical evidences of local disease than those which spring from degeneration of the sacculi of the rectum.

The symptoms indicative of this form of disease are not pathognomonic. One case—the last one detailed—is, as has just been stated, an illustration of the fact that there may be no special feature in the symptoms presented by a case in which degeneration of the sacculi is the only local disorder that can be recognized by the most thorough investigation. Yet, in uncomplicated cases, it is rarely that the complaints of the patient are not a clue to the condition which excites them. Pain in the fundament and itching of the anus have been present in every case of this disease that has passed under my observation. In the great majority of cases both the pain and the itching possess special characteristics; the former differs as much from that excited by fissure of the anus as it does from the pulsating pain incident to phlegmonous inflammation of the adjacent parts; while the itching of the anal region, which is so common and so troublesome an accompaniment of diseases of the terminal orifice of the large intestine, is so frequently due to degenerative disease of the minute sacculi at the anal orifice, that the latter should always be looked for when the former is complained of. In uncomplicated cases of this disease—that is, cases in which the hypertrophied sacculi are not the seat of secondary ulcerative changes, and in which the neighboring tissues have not broken down into fissures, etc.,—the symptoms enumerated may so alternate as to lead the sufferer to believe that the pain is the cause of the itching. I have met with cases in which the disease has been called neuralgia of the anus, or rectum, and where the history of the case would lead one unfamiliar with such cases to believe that such a diagnosis was justified by the facts to be elicited. Yet it required naught but a simple inspection of the part to display the distended, hypertrophied sacculi. Cases in which pain is the sole symptom present, must be very rare, yet there are many patients who have sufficient self-control to prevent scratching, in whom the annoyance caused by this form of irritation is very slight—these are the cases of simple "neuralgia" of the rectum, or anus, that a physical exploration shows to be due to disease of these sacculi. The influence of digestive disorders, by interfering with the portal circulation, as well as by the acrid change they induce in the matters voided, is an important factor in the production of all forms of disease of the large intestine and its terminal orifice, but especially in the development of this insiduous form of local trouble. In tracing the history of patients suffering from it, we generally find some complication developing, thus merging the previously indefinite symptoms of degenerative disease into the sharply defined and very characteristic phenomena of fistula in ano, or fissure of the anus.

In the case first detailed will be found an illustration of a case of cystic degeneration of the rectum running a nearly typical course. The more usual course—the itching, as a symptom, proving more severe and intolerable than pain, pure and simple—is pursued by the symptoms most commonly present in this disease. When symptoms such as these go to the extent they did in this case, it really matters but little what they are called, for they are equally agonizing and exhausting. The influence of the excitation transmitted to those nerves of the rectal mucous membrane, which in health serve to convey to the proper nerve-centers the stimulus that excites those expulsive efforts which mechanically evacuate the bowels, is shown in the fact that this patient's bowels would move a dozen times a day unless he prevented it. Did he once yield to the desire which was constantly present, and endeavor to evacuate the rectum as often as it felt full, his control over the evacuations would soon be lost, and he would have to resort to medical aid for relief. The altered nature of the pain is also characteristic, but especially so was the final form of diarrhœa that came on and compelled the clergyman to abandon his pulpit, in the case first detailed. The "explosive" and "spasmodic" features of that case are occasionally met with in the latter stages of this complaint in patients who have not suffered from those complications—such as fissure, ulcer and fistula—that compel the invalid to seek medical aid and submit to an examination. The change induced in the nerve filaments of the part, seems to be intermediate between the natural stimulus which excites contraction when the rectum is distended, and that pathological state that is present in cases when tormina and tenesmus are complained of, and is due to the unnatural degree of irritation to which the neighboring nervous tissues are subjected. The glandular structures about the anus are also unduly stimulated. The fluid retained within the sacculi that have became distended becomes, inspissated from the evaporation or absorption of the greater part of its watery constituents, while the increased flow from the healthy, but unduly stimulated glandular structures about the verge of the anus, is the source of the liquid which keeps the anal region continually moist.

The recognition of this form of disease of the rectum, depends upon the care with which a physical exploration is made. There are cases in which the presence of itching and pain, with a tendency to continually evacuate the contents of the rectum, occurring in patients who are free from the symptomatic phenomena that attend spasm of the sphincters and fissure of the anus, will suffice to excite a suspicion as to the presence of this morbid anatomical condition. Yet, even among those practitioners who have the largest experience in the treatment of diseases of this region of the body, such symptoms will do but little more than render a physical exploration imperative, ere a diagnosis will be hazarded. In making a physical examination, care must be taken not to irritate unduly, the integument of the anal region, for in almost every case the patient, in vain endeavors to allay the itching, has scratched the parts to such an extent that they are swollen and infiltrated and so irritable, that even the most gentle contact may excite a violent spasm in the sphincters of the anus. Thus, in one of the foregoing cases, the spasm of the sphincters caused the anus to assume an appearance totally unlike anything the physician would expect to meet with in cases of this affection. By exercising care, and proceeding gently, no trouble need be experienced in securing a view of the region of the rectum in which cystic degeneration occurs. In the majority of cases the appearances are such, that, when once seen, no trouble will be experienced in recognizing similar cases when they present themselves. When disease implicates the sacculi, it may cause one or more of the sacs to assume the character of cysts—if the latter grow to any size, there are rarely more than two or three cysts present. On the other hand, however, if the morbid process runs its course without closing the sinus leading to the sulcus between adjoining columns of Morgagni, thus affording a free exit to the fluid secreted by the glands of the sac, the inflammation may extend from one to the other, until it ultimately implicates all these structures about the outlet of the rectum. In that case, they will all remain small, and feel like medium-sized shot embedded in the sub-mucous tissues of the anal region. The probe will readily enter the patulous orifices of the latter—in the former, the explorer may have to press hard upon the distended cyst before he can make the probe pass into the canal leading to its cavity. By manipulating carefully—alternately passing the point of the curved probe down the sulcus to the place where the opening leading into the cyst should be situated, and pressing firmly against the most dependent portion of the cyst, in order that some of the contents of the latter may be forced out, and thus reveal the position of its excretory duct—the examiner will succeed in passing the instrument into the cyst, and be able to explore the recesses of its cavity. The roughness of its internal surface and the thinness of its rectal wall are phenomena that will attract the attention of the observer.

Disease of the sacculi of the character now under consideration may manifest itself in one of two ways—there may be enlargement of one or more of the sacs, with retention and inspissation of their secreted fluids, or a greater number may inflame, but, owing to the free exit afforded their secretion, they neither grow so large as the former, nor, like them, do they present the characters of closed sacs. In both, the essential process seems to be a chronic inflammation—in the former, the closure of the external opening leads to dilatation of the cavity; in the latter, beyond a certain amount of enlargement due to the swelling of the glandular elements and submucous tissues, the force of the diseased action seems to expend itself upon the minute glands of the sacculi, which hypertrophy, degenerate and sometimes ulcerate. In the one case, there is more of a tendency to the formation of cysts; in the other, to glandular degeneration. As a general rule, the course pursued by the inflammatory process will be greatly modified by the amount of mechanical irritation the part is subjected to in the patient's endeavors to allay the intolerable itching by scratching.

The thickening of the integument of the anal region, and the subcutaneous infiltration—both due to the cause just mentioned—are the most common complications of this disease. It not infrequently happens that when there are two or more large-sized cysts distending the anal orifice, that the delicate muco-cutaneous folds between them becomes fissured, and in that case, to the pain and itching, the mucous flow and peculiar diarrhœa of cystic disease, are added the unmistakable pain and the spasmodically contracted sphincter of anal fissure. When there are a number of the sacs diseased, but none of them enlarged to any very great extent, it sometimes happens that ulceration of the bottom of the sac extends inwardly and destroys the internal wall. There is thus formed a small, round ulcer, which may not be attended with the symptomatic phenomena common to fissure of the anus. But the most frequent accompaniment of the second form of degenerative disease of the anal sacculi is a series of abscesses, which develop about the most dependent portions of the sacs, and which seem, in many cases, to be due to inflammation excited about the little pellets of excrementitious matter that are caught in the open mouths of the sacculi. The pain these abscesses excite is very sharp and exhausting. As a result of these abscesses, fistulæ are quite frequently developed.

When either form of degenerative disease of the anal sacculi develop in a person subject to attacks of external or internal piles, the hæmorrhoidal tendency is so stimulated that the patient is kept in almost constant agony. The cases in which suffering is borne longest without resort to medical aid, seems to be those in which there is no complication. In such patients, the amount of agony endured, and the length of time they will go without endeavoring to procure relief, is something quite remarkable.

The treatment, it is scarcely necessary to say, must vary with almost every patient. In the case of the clergyman whose history is the first one detailed in this paper, it was very simple. When pressure was made on the enlargement at the back part of the anus, there was a free gush of thick, viscid mucus, and the cyst subsided, so that its collapsed walls could be rubbed, the one over the other. Pulling the parts as far through the ring of the sphincters as possible, the mouth of the canal running from the sulcus between adjacent columns of the rectum into the cyst was brought into view, and the point of a curved probe was passed into the latter. Pressing forcibly on the handle of the probe rendered the internal wall and bottom of the cyst prominent; a pair of sharp-pointed scissors was used to separate as much of the internal wall as possible from adjacent tissues; this having been done, and the smallest scissor-blade passed by the side of the probe, through the canal and into the inter-columnar sulcus, a single snip sufficed to open the whole of the cyst to the air. As soon as the spasm of the sphincters, which was excited by the last step of the operation, had subsided, the flaps of mucous membrane which formed the internal wall of the cyst, were seized with the forceps, and trimmed off with the scissors. In separating the parts which had converted the sulcus into a canal, the scissors impinged somewhat upon adjacent healthy structures, and a free flow of blood was the consequence. When the latter had been checked, the former external wall of the cyst was open for inspection—when the finger was placed on it, it felt as if studded with an immense number of minute grains of sand, and when rubbed with the point of a probe, it yielded a gritty sensation. Washing the remains of the cyst carefully, seemed to remove much of the roughness. More pain was complained of when the probe was passed into the second enlarged sac, at the right of the cyst, than was experienced when the inner wall of the latter was snipped off. After checking the bleeding from the large cyst, the bent probe was passed to the bottom of the second enlarged sac, a hole was cut in its internal wall large enough to admit the small blade of the scissors, and as the latter was advanced, the probe was withdrawn. When the point of the scissors-blade appeared above the margin of the internal lip of the sac, the handles were closed, and the internal wall was cut open from summit to base. Considerable pain was experienced by the patient at this time, but no blood was lost. The free edges of the separated folds of mucous membrane were removed, and were found quite thick, but not vascular. The inner aspect of the sac thus opened, was found roughened, and like that of the cyst, apparently coated with calcareous matter. The point of a solid stick of nitrate of silver was rubbed over the exposed surface of the cyst, and immediately afterwards a saturated solution of common salt was painted over the part thus touched. The same course was pursued with the parts at the site of the inflamed sac—considerable pain, however, attended this application. The operation was so trivial, that I performed it in my private office the same morning the patient arrived in the city; no anæsthetics were employed, and after resting on my sofa until 4 P. M., he took the cars and returned to his home, seventy-five miles distant. I enjoined him to bathe the parts three times a day—morning, noon and night—in luke-warm water, to each ounce of which five drops of the tincture of the chloride of iron had been added; to take an ounce of cod-liver oil after each meal; and to make use of an emollient I provided him with. The latter was prepared as follows: To an ounce of pure, sweet cream, add enough oxide of zinc to form a thick paste—then add a fluid drachm of chloroform, and after working the whole quickly, put it in an open-mouthed bottle that can be stopped up tightly. A small quantity of this ointment was to be rubbed on the part whenever there was any itching, and at night it was to be placed at the side of the bed, and enough used to procure relief. It was eight days subsequently, when I next saw this patient. The point formerly occupied by the cyst, was the site of a small, circular abrasion, no larger than the uncut end of a lead pencil, from which a number of granulations were projecting; there were no traces of anything unnatural at the point where the small sac was situated. He said that for the first day or two there was a great deal of burning whenever he bathed the part, but that that subsided before a week elapsed; that the itching was severe for the first two days and nights, and the ointment only afforded relief momentarily, but after that, the itching disappeared completely. His bowels were regular from the time he commenced using the cod-liver oil. The abrasions about the anus were nearly well. A month subsequently he wrote me that he was entirely free from all disease of the rectum, and when I saw him in 1874, he still continued free from annoyance. The treatment adopted in the case of the girl was entirely local. The cyst at the verge of the anus on the right side was partially evacuated by firm pressure; a fold of its internal wall was caught with a pair of forceps and excised, when, after forcing out a quantity of gritty, semi-solid material, the canal leading to the sulcus above, was slit up, the loose edges cut off, the whole surface washed and thoroughly cauterized with nitrate of silver. For some reason, the after treatment ordered was not followed. When the patient's bowels moved, next day, there was considerable pain, but after that, there was no more tròuble. I saw the patient about six weeks after the operation, when she stated that she had not been so well for years. She also informed me that her father thought that there was no need of having a doctor after the operation was performed, and that motives of economy actuated him in the course he pursued. It was fortunate for the patient that her surgical malady was of the simple nature it chanced to be, for I believe the same course would have been pursued under all circumstances, without any regard whatever to the necessities of the case.

Two of these cases were examples of that form of degeneration of the anal sacculi in which the number of sacs diseased is small, but in which there is occlusion of the excretory duct, with retention of the glandular secretion and enlargement of the sacs affected. In such cases, the first and strongest indication is to destroy the cyst, and provide a ready exit for the material produced by the irritated glands opening into the cavity. No more effectual plan can be resorted to than the one employed in these cases. The internal wall of the cyst is thin, it contains no glandular tissue and does not seem to be coated with calcareous salts in the same manner as the external wall. By slitting it up, and cutting off the loose pieces, the cavity of the cyst is opened freely, its contents evacuated, and its morbidly changed external surface submitted to the stimulus arising from contact with the air, and neighboring structures. The solid stick of nitrate of silver is the most efficacious measure with which I am acquainted for the removal of calcareous incrustations. If used in connection with a solution of common salt, there is no danger of cauterizing too much.

So far as the morbid appearances are concerned, the last case detailed is a typical example of that form of degenerative disease of the anal sacculi in which there is implication of all, or almost all the sacs of the rectum, without retention of secretion and enlargement of the sacs. Instead of a few large cysts, there are a number of small sacs, which, together with a certain amount of submucous cellular tissue, is the seat of chronic inflammation. So far as the influence exerted upon the nervous structures of adjacent parts is concerned, there is very little difference—the symptoms, reflex influences and secondary remote changes are strikingly alike in both forms of the disease. The treatment to be pursued is also essentially the same. It consists in the exposure to contact with adjacent structures of the parts behind the thin fold of mucous membrane which forms the internal wall of these crypts, or sacs. In the patient whose case was the last one detailed there were only three sacs which were not the seat of chronic inflammation—eight others were inflamed, thickened and hypertrophied. By taking hold of the fold of mucous membrane which forms the internal wall of the sac with a pair of forceps, and cutting out with a pair of scissors the part grasped, a number of indications for the cure of chronic inflammation were complied with. A portion of the morbidly modified tissues was removed, and the reparative process was initiated. Not only that—by depleting the vessels of the part, and stimulating nutrition in the locality where the materials for repair were vastly in excess of the power to employ them properly, a necessary and most beneficial process was inaugurated. In addition, the recesses opened by the incisions were freed from the irritating matters that had accumulated in them. The removal of all sources of irritation and the stimulus given to the reparative process were speedily followed by evidences of amendment. On the third day, the part was discharging freely—there had been no spasm of the sphincters, and no great amount of pain, as a result of the operation. No local applications were resorted to after this time, and, in fact, no measures, other than local ablutions and attention to the solubility of the bowels, were employed after the first day. So far as the lesion of the rectum was concerned, the patient's progress was speedy and satisfactory, and within a month from the date of the operation, that part had recovered entirely. His general health began to improve at the same time, and in the course of a few months, most of his distressing symptoms subsided. He then went abroad with the intention of remaining several years, and I have not since heard from him.

Continental Medicine.

JAS. T. WHITTAKER.

THE DEVELOPMENT OF THE OVUM AND THE ESSENCE OF CONCEPTION.—Prof. Dr. Th. L. W. Bischoff, of Munich, has just published some "historico-critical observations on the latest communications concerning the development of the eggs of mammals." (Literarisch-artistische Anstalt von Th. Riedel, 1877.) The author first considers the theory of the cell: "Is the egg of mammals a simple cell, as it is now regarded and described?"

To give a satisfactory answer to this question, we must first consider what is meant by a cell in animal life. It can not be denied, that the term "cell" in modern science, conveys a physiological, not a morphological idea. The attempt to describe a cell morphologically, is very embarrassing, from the fact that the most different forms, sometimes simple, sometimes highly complicated, are embraced in it. These forms have only the common physiological property of being what Brücke calls elementary organisms, and Virchow, units of life. The author considers the egg physiologically an elementary organism, a living unit, but he refrains from describing the egg as a cell morphologically, because he only uses this term (cell) for structures which have certain morphologic resemblances. He gives then the following definitions: A nucleus is a firm or semi-firm, but always solid body, which may enclose one or several nucleoli. The characteristic feature of a cell is an investing membrane, and besides this membrane, it possesses contents of some kind or other, either fluid or finely granular, and a nucleus different from the contents. A nucleus surrounded by any kind of plasma, without an investing membrane, is a protoplast. A cell which is surrounded by a layer of plasma, the author denominates, with Valentin, "a cell circumferentially enveloped," and when a cell is found within a cell it is so described.

If we look at the egg now, under this classification, we discover that it is the germinal vesicle only, which is a true, primary cell. It is the only structure in the egg (not in process of development,) which meets the definition of a cell proper, as the whole egg itself is "a cell circumferentially enveloped." The ovum can not therefore be looked upon as a simple or primary cell. But the author does not direct a polemic against the physiological conception of the egg as an elementary organism, for he looks upon the egg in this light. He objects only, but most emphatically, to the view that structures so different, morphologically, and mostly so complicated, as are the eggs of many animals, should all be embraced under the term cells. If we regard the yolk not as the contents of a primary and simple cell, but as the enveloping matter about a cell, that is, about the germinal vesicle, we do not disturb either our physiological or morphological conceptions, even though the yolk matter be very different in quantity, quality, or form. The yolk of an egg may be either simple formative matter, or both formative and nutritive matter; it may be holoblastic or meroblastic, protoplasmatic and deuteroplasmatic; it may consist of fluid or granular plasma; it may be formed even of protoplasts by their liquefaction; in all these ways it may be formed and yet the essential nature of the egg will not be changed. We may say the same also for the envelops of the egg, which are always secondary products, that is, deposits from the outside. But all this does not alter the physiological character of the egg as an elementary structure, or even as an elementary organism, though it is certainly not consistent with the morphological character of a simple primary cell. "I am not partial," the author states after this explanation, "to that schematic representation which forces the ovum into the category of simple elementary forms, in the face of all observations and experience. Nature is not at all concerned with our short-sighted conceptions of her forms, and we have as yet scarcely a trace of knowledge of the laws which determine them."

It is very apparent that our author, with this view of the great difference between morphological conceptions, a view which he has maintained so long, and a view which is in most perfect harmony with numerous morphological, physiological and pathological facts, lays the foundation for the scientific distinction between forms fundamentally different.

The question of the method of impregnation of the egg, as shown by the author, is one of no less importance. That the spermatozoids penetrate to the interior of the egg in mammals, and that they travel completely out to the ovary, as first observed by Bischoff in a bitch, June, 1838, are facts now universally accepted and confirmed. But the question arises: how do the penetrated spermatozoids effect impregnation? Do the spermatozoids, as Dr. C. Hertwig claims for sea urchins, play a morphological role; that is, do the heads of the spermatozoids, the sperm nuclei so called, copulate with the germinal spots, the egg nuclei as they are styled, so that the nucleus of the first segmentation cell may be considered as the nucleus of the whole process of segmentation? Or is the substance of the nucleus, as Strassburger states, more a physiological than a morphological material? The latest observations of Van Beneden, made this year, give an entirely different interpretation to the result of the copulating structures in the egg. For this last observer shows that Hertwig's nucleus of the ovum is not the germinal spot (whose dissolution, as Bischoff claimed he has positively seen), nor is the sperm nucleus, so called, the head of the spermatozoids, as it is an entirely newly formed nucleus. As opposed to the views of Strassburger, the author quotes the language of F. Lieschen, who has just completed his most accurate chemical investigations of the human semen: "there is" says this observer, "nothing specific in the impregnating matter; all chemical considerations are of secondary importance."

All these questions were really definitely settled long ago by the discoveries of Bischoff, 1847, in the eggs of frogs, fishes and mammals. Bischoff found that all the first stages of development, disappearance of the germinal vesicle, appearance of a new nucleus in the interior of the yolk, condensation and volume reduction of the yolk, movement phenomena in the yolk, finally even the first stages of segmentation, all these changes occur in eggs which have not been impregnated, and in eggs which never are impregnated at all, but which have been discharged from the ovary simply on account of their maturation. Bischoff observed these facts, as stated, in many different species of animals thirty years ago. In 1870 Oelloche described the changes up to segmentation, which he observed in the unimpregnated egg of the hen, and v. Siebold represented similar changes in the eggs of several anthropoids produced by parthenogenesis. This author used these facts, as did Bischoff in explanation of the parthenogenesis, or virgin form of reproduction. Moquin Tandon also has recently seen the process of segmentation of the yolk in unimpregnated frog's eggs, and Van Beneden lays stress upon the point, that the first phases of development are entirely independent of impregnation in the egg of the rabbit.

Those observers, therefore, who derive all the developmental processes in the egg from impregnation, are clearly in error. The appearance of a new nucleus in the yolk, after disappearance of the germinal vesicle, the division and final disappearance of the new nuclei with the subsequent process of segmentation, can not be explained with the views of Auerbach, Strassburger, Bütschli, Fol, Flemming and C. Herting. These changes are not dependent upon the formal union and copulation of a sperm and germ cell, nor upon any chemical or dynamical effect of the spermatozoids, for they occur without the presence of spermatozoids at all. Parthenogenesis has long ago conclusively proven these facts. As to the ultimate essence of impregnation, the later investigations give us nothing definite, and simply for the reason that it is past the limits of our comprehension. Nevertheless the pressure of accumulated facts has forced investigators into more harmonious views. Prof. H. represents the status of existing knowledge in a few words when he says: "Scientific theories regarding impregnation, can be no other, than theories of transmitted motion." And Miescher says: "If I seek for a comparison that shall unite all existing observations, there remains—as it seems to me—nothing else than the representation of an apparatus, which produces motion of some kind or other, or which changes this motion. * * * In fact, the view that impregnation is a process of physical motion, is the only view that is not in contradiction to established facts. This motion may arise in the semen and pass over to the egg, or the motion may only arise after contact between the semen and the egg."

As long as 28 years ago, Bischoff presented this theory of the essence of impregnation. J. v. Liebig had already proven, that that the action of a ferment by contact consisted in the transfer of molecular motion from the ferment to the fermentable material. It was in the sense of such transmitted molecular motion, by contact, that Bischoff compared impregnation with the well known phenomena of fermentation. But even then, on the enunciation of this theory, the author emphasized the fact most positively, that impregnation required not only a simple contact, but also some kind of material participation in the motion imparted. He says: "I had even at that time called attention to the fact, that the phenomena mentioned prove developmental movements to have already commenced in the mature egg, as a consequence of internal molecular changes, before there could be any question of their production by the sperm. But in the rule, we observe that the intensity of this motion is not sufficiently great to lead to further development, and perfect production of form. It must receive additional force and probably also a definite direction, in order that the further movements of development—those requisite to the complete construction of the embryo—may ensue. The egg receives this further addition, strength and direction of motion from the spermatozoids, whose individual mass movement is proof that the matter of their composition is also in the condition of intense activity. We possess nowhere else such a perfect insight into the cause of organic movements as here, and the view which this insight gives, will be as satisfactory to the reasoning mind as every other application of the law of the conservation of force."

The terms "contact and fermentation," have been looked upon with such one-sided views, and without a proper understanding of the author's definitions, as to have excited much opposition to his theory of impregnation. We live now to witness the curious spectacle, unfortunately not very rare, of authors attacking the original promulgator of a theory with arguments, which when, properly understood, exactly prove his position. — *Medizinische Neuigkeiten f. Praktische Aerzte*, May 12th, 1877.

CICUTIN. —This principle, obtained from conium maculatum, unites with a number of acids to form salts. Combined with hydrobromic acid to form cicutinum hydrobromatum it has lately been experimented with by Moraunt. The formula for it is, $C_8 H_{15} N H Br$; it contains by weight 0.405 hydrobromic acid, and 0.595 cicutin. The salt crystalizes in rhombic prisms, and is soluble in water, alcohol and ether. It resembles curare in its effects, as it destroys the function of the motor nerves, leaving muscular contractility intact. According to Mortin, Damourette and other experimenters, the salt effects hematosis also and exercises some influence on the circulation. Gubler reports the case of a lady, who applied to a tumor an ointment prepared from this drug, and lost sensation in the finger with which the friction was made. In Petrini's experiments on animals, 0.04 cicut. hydrobrom. produced hypnosis in 20 minutes, and 0.06 beginning paralysis, and when, two hours later, 0.02 was injected, the paralysis became complete and death followed in one to two hours. The drug acts differently through the skin and in the stomach, as 40 centigrames of it hypodermically only produced paralysis in a powerful dog, after 24 hours, with subsequent sleep for three days, while the same quantity in the stomach produced death in two hours. In dogs of average size death follows the injection of 0.15 grm.

The most important observations referred to the vagus. A little dog was injected with 0.10 cicut. hydrobrom. subcutaneously, while the vagus was half divided and irritated. Nausea followed, but no vomiting. Twenty-four hours later, the dog having recovered, the vagus was again half divided a little lower down, without the administration of the drug. This time vomiting set in, although the stomach was just as empty as before. The absence of all convulsion with this drug and its effect upon the vagus, confirm the statements of Dujardin Beaumetz, that it will prove of value against all reflex diseases connected with the vagus; against whooping cough, asthma, singultus, dysphagia, obstinate vomiting, etc., especially when combined with the bromide of potash. Petrini gave a three year old child, affected with obstinate whooping cough, 0.03 cicut. hydrobrom. with syrup simple, without toxic effects and with great benefit, and succeeded in checking the vomiting in a case of cancer with a dose of 0.05 within 24 hours. —*Revue Méd. Roumaine* 11, 1877.

A NEW TREATMENT OF CATARRH OF THE BLADDER. —Prof. Dr. G. Ellefsen, of Kiel, publishes in the Deutsch. Archiv. Klin. Med. XIX, 1, 1877, a long essay on the treatment of catarrh of the bladder. The author first considers the previous and prevalent methods of treating this affection and recommends a new treatment, which has proven of signal efficacy in his hands.

The view lately advanced that the best method of treating cystitis, even acute cases of it, consists in the introduction into the bladder through the urethra, of water or medicated fluids, is not in accordance with the author's observation. There are connected with this treatment dangers which have induced the author to limit it to cases in which internal general medication has failed, that is to old and obstinate cases.

The urine is a very sensitive solution of highly decomposable substances, and it becomes all the more sensitive, and all the more inclined to putrefactive changes when it contains, as in cystitis always, white blood corpuscles, albumen and mucin. Besides, the mucous membrane of the bladder is exceedingly sensitive and nothing acts upon it more injuriously, at least when it is in a pathological condition, than alkalinity, and above all things the ammoniacal alkali of the urine. In spite of the most scrupulous care and cleanliness—the experience of catheterization has abundantly proven it—the entrance of minute organisms cannot always be prevented, and once entered, these organisms, in their swift reproduction, speedily excite or accelerate decomposition of urea, which in turn mingled with blood (pus), serum, leads to alkalinity of the urine. Thus damage is inflicted upon the mucous membrane by the very means employed to prevent it. Hegar has reported a number of mishaps with the local treatment of catarrh of the bladder. But entirely aside from this question, the author claims that that treatment should have the preference which is the least severe, and this is the case with medication by the stomach, provided such medication exercise no injury upon any organ of the body. The author subscribes with his whole heart to the principle established by Prof. Dittel, of Vienna, to the effect that no instrument should ever be introduced into the bladder in cystitis, unless imperatively necessary. There are cases of cystitis attended with urethral structure of high degree, in which the introduction of fluid is impossible, and yet the treatment of the cystitis is just as satisfactory.

The new remedy which the author employs, is the chlorate of potash. In the dose required, this remedy exercises no bad effect either upon the stomach or any individual organ of the body, and from the observations made as to the effect of this agent, after its ejection with the urine, upon the mucous membrane of the bladder, the author believes that it will eventually be used by injections into the bladder wherever injections are permissible. The most effective remedies hitherto employed besides water irrigation and diet regulation, were oil of turpentine and balsam of copaiba. "Whoever has used these agents must agree with me when I maintain that there are but few cases of vesical catarrh which resist these agents, and these cases are either due to tuberculosis, cancer or other incurable disease, or they are cases of very long standing, before having been submitted to this treatment. No other remedy, according to the author, will so quickly render acid the alkaline urine of cystitis as the oil of turpentine, and in the second rank, the balsam of copaiba. They are now not to be confined, as Felix v. Niemeyer maintained, simply to the chronic cases; they furnish the best results in recent cases also. The author always prescribes the balsam of copaiba, so soon as the first bladder symptoms present in gonorrhœa; in acute cystitis from other cause, when the disease is only of a few days duration he gives the oil of turpentine, and in the rule but a few days continued administration suffices for a cure.

When we remember that the normal reaction of human urine is acid, that the mucous membrane of the bladder is continually bathed by acid urine, we may readily understand why an alkaline urine is damaging. The re-establishment of the normal reaction would seem thus to be an indication in the treatment of catarrh of the bladder. The mineral acids do not suffice to effect this reaction, but the turpentine oils introduced into the stomach accomplish it in a few hours, except in the most obstinate and rooted cases. The catarrhal secretion is also diminished by it, the acid reaction reacts in turn upon the cervical mucosa, and the subjective manifestations, in the rule, speedily disappear.

How is it then—in contradiction to this theory—that the alkaline mineral waters have always enjoyed such a reputation in the treatment of catarrh of the bladder? Lebert, as is well known, boasts of bi-carbonate of soda as a specific almost. The author would not attempt to solve this question altogether, but he thinks the chief advantage of the waters is the quantity and consequent dilution of the urine and irrigation of the wall of the bladder.

But it is not to be forgotten that turpentine sometimes irritates and inflames the kidneys and the bladder, and may even induce hematuria. These accidents are however so rare as not to interfere with the administration of turpentine and copaiba in the rule, unless there are complications with ulcer of the stomach, catarrh of the stomach, dyspepsia or inflammation of the kidneys. The other remedies recommended, folia uvæ ursi, salicylic acid, benzoic acid, etc., are occasionally of value, but can not be relied upon.

The new remedy the author recommends, is chlorate of potash. He recommends it after thorough and conscientious trial and with full conviction of its value; it is a rational remedy in every way, it never damages the stomach or any other organ. It substitutes turpentine perfectly in cases where turpentine cannot be given.

That the chloric acid salts, when administered internally, pass into the urine, was demonstrated in 1856 by Lambert. The value of the chlorate of potash in affections of the mouth and pharynx, leads the author to their administration in affections of the bladder, the epithelium being in both cases alike of the pavement variety. The action of this remedy seems confined to this variety, as it has no effect upon the trachea or bronchial tubes. Its action is not to be explained by simple contraction of the muscular coat of the vessels, as it not only reduces the hyperæmia and catarrh, but also closes ulcers over quickly as if it exercised a specific action in the reproduction of epithelium. The author's results were extraordinary, still there are cases in which he failed with it, and was compelled to resort to turpentine and copaiba. He orders for adults usually: potass., chlorat. 15.0, aqua., dist. 300.0, of which a tablespoonful every two or three hours. He lays stress upon the prescription, because it is necessary to bring the patient under the influence of the remedy quickly. Should the taste of the drug after long administration become insipid or sickening, it may be corrected by using cherry laurel as a vehicle (10.0—300.0); any syrup should be avoided. The pus begins to disappear from the urine after its use very quickly—an important difference from the action of salicylic acid—and the subjective distress is lessened or disappears even before the pus has entirely vanished. The acid secretion is restored, but not so quickly as after turpentine, but the restoration of the normal reaction, the reproduction of a normal mucosa with normal epithelial cells, with corresponding diminution of the catarrhal secretion, constitute the cure.

A NEW METHOD OF TREATING NASAL CATARRH.—Dr. Arthur Hartmann, of Berlin, reports a new method of treating acute and chronic nasal catarrh, which he has found of great service. This treatment is of importance to the aurist, because middle ear troubles are not infrequently caused by nasal catarrh. The author discovered that inflation with air, during the act of swallowing, not only mitigated the ear troubles, the deafness and roaring sounds, but also relieved the frontal distension and fullness of the head. The air is simply forced into the nose with a rubber balloon, after Politzer's method for the ear. In order to ascertain the effect of compressed air, in expressing fluids from the nose, the author made a number of experiments on dead bodies. He filled the cavities about the nose with fluids, and observed that when air was forced in, the fluids were forced out. The author hereupon reports a a number of cases, in which the unpleasant symptoms of nasal catarrh were completely relieved in this way. To remove the crusts of ozæna, he uses a brush fastened at right angles to the end of a thin flexible wire, an apparatus such as is used for cleansing tobacco pipes. The tenacious secretion is entangled upon the brush and removed. The nose is then washed out with water, and air is forced in after the manner described. — *Deutsch. Med. Wochenschr.*, 16, 1877.

TRANSMISSION OF SYPHILIS BY TATTOOING. — A young man aged 19, had his right fore-arm tattooed in June, 1876. The coloring material used was India ink, *mixed with much saliva* of the operator. Which saliva was also rubbed upon the surface after each puncture, to remove the ink which was superfluous, as being out of the limits of the design. The session of the operation lasted twelve minutes. It should be stated that the operator had remarked to the subject, during the operation, that he had a sore mouth, which was being treated by a physician with cauterizations, with nitrate of silver.

Towards the end of August, that is two months and a half after the inoculation, the young man noticed on the dorsal aspect of the right arm, three small elevations or buttons. Two were close together and were situated about two centimetres above the radio-carpal joint. The third, isolated, was nine centimetres lower down. The buttons were covered with crusts, which when removed, permitted a yellowish white fluid to escape. Cataplasms applied, caused the ulcers to extend so that the adjoining two coalesced into one. At the same time an indolent adenitis developed in the right axilla.

A month after the primary accidents, the patient, on the advice of *eight* comrades who were all in the same condition, consulted a physician. The physician recognized the nature of the disease, continued cataplasms, and commenced a course of mercury. The ulcers cicatrized towards the end of October, that is two months after their appearance.

In the first days of January, 1877, there presented the first secondary phenomena, consisting of

Plaques Muqueuse—on the sides of the tongue, on the mucosa of the lips, the arches of the palate, on the mucosa of the prepuce and on the scrotum. There were also some crusts among the hairs of the head; there was an indolent gland in each groin and there were voluminous and indolent glands in the axillary and submaxillary regions. But the epitrochlear gland was not affected.

The ulcers on the fore-arm were coin-shaped and copper-hued. There was no other cutaneous manifestation. The mucous plaques disappeared after 22 days of mercurial treatment.

This observation is worthy of note for many reasons. Not to speak of the strangeness of the fact in itself, we note that such an accident has not yet been recorded by authors, notwithstanding the considerable number of tattooings practised.

As regards the inoculation of syphilis, this case proves the possibility of it by the saliva.

We note again, 1st—the long period of incubation, two and a half months. This long interval was probably due to the fact, that the extra-genital lymphatics are less prone to transmit syphilis. 2nd — the very protracted cicatrization of the primitive lesions. This fact was the more surprising, because ulcers of the upper extremity usually heal rapidly. But it may have been due to the emollient applications, as bad syphilitic ulcers demand more energetic treatment. — *Gazetta Medica Italiana*, April, 7th. and L'Osservatore Gazetta delle Cliniche di Torino, April 10th, 1877.

Bi-Monthly Abstract.

An Abstract of Current Contributions to Obstetrics, Gynecology and Diseases of Children.

Condensed by Edward B. Stevens, M. D., Lebanon, O.

Prevention of After-Pains. — Dr. LeDiberder (Ann. de Gynecol.) believes that ergot, suitably administered, has the power of preventing after-pains. He gives a half drachm in divided doses directly after the expulsion of the placenta, with the object of bringing about a firm and consistent contraction of the uterus, in place of the alternate contractions and relaxations to which he says after-pains are due. The *Dublin Med. Press and Circ.*, in commenting upon this statement, calls attention to the opinion of Sir Charles Locock, that after-pains were due to the retention of coagula, and that firm manual pressure upon the uterus, to promote their expulsion, was never followed by after-pains.—[*N. Y. Medical Record*, *Jan.* 20, 1877.

ONE OF THE CAUSES OF VAGINISMUS.—Dr. Johannsen (Petersburg Med. Wochscr.) reports the case of a woman married six years, without children, who had suffered since her marriage from extremely intense pains in the vulvar region during coition and micturition. She had submitted to almost every variety of treatment, without effect. On examination, two yellow points, as large as pin's heads, were found in the mucous membrane of the lower wall of the urethro-vaginal septum; these were ascertained to be the openings of two incomplete fistulæ in the urethro-vaginal septum. On probing one of them, five millimetres in length, the same pains were produced as when the urethra was pressed against the symphysis. This fistula was slit towards the urethra, and healed under the occasional application of nitrate of silver. The smaller fistula was also cauterized but did not close. The author places the origin of these fistulæ in the lacunæ of the female arethræ (analagous to the glands of Littic, of the male urethra) and believes the exciting cause to be the act of coition. Perhaps the first traumatism may have been sufficient to cause inflammation of the gland, the occlusion of its duct, with subsequent abscess into the urethra, the urine causing the fistula to undergo subsequent enlargement. The author thinks it more probable, however, that the secretion of a chronic gonorrhœa may have been transplanted to this location. He was led to this supposition by the presence of a conical, indurated cervix, with a small, rounded os, a form of cervicitis which Martin states is frequently due to an inveterate gonorrhœa of the husband; furthermore, by the patient's statements, that four years before she had had small warts on the labia, which in all probability were condylomata.—*N. Y. Medical Journal, Jan.*, 1877.

PAINFUL COITION.—Dr. John S. Warren reports several cases, each having individual peculiarities, and suggests that they have impressed him "with the belief that in a very large proportion of uterine disorders, this symptom (painful coition), for which Dr. Robt. Barnes, of London, has coined the new word 'dyspareunia,' is too frequently overlooked, either by the physician, on account of its comparative unimportance, or the disagreeable subject, or by the patient, from her delicacy in referring to it without being directly questioned, no matter how much her sufferings may have been. The variety of causes that produce this condition are exceedingly numerous, and need hardly be enumerated to any physician with a fair amount of gynecological experience. Still, among the most prominent, I may mention that it may commence with marriage, when an unnatural situation of the vulvar orifice, together with violent or awkward attempts at connection, occasion urethral irritation and caruncles; or, again, the ruptured hymenial membrane may be the seat of irritable carunculæ or ulcers, the latter particularly towards the perineum, which, like anal fissures, are a source of constant distress and uneasiness, and with no tendency to heal voluntarily. These fissures may occur, too, when the vagina, though originally sufficiently capacious for marital purposes, has been lacerated from child-bearing, and the new cicatricial tissue which has formed at the border of the perineum has, from lack of elasticity, slightly torn, leaving an irritable crack or ulcer, which may make coitus always to be dreaded and painful on the part of the female. Any of the dislocations, too, to which the uterus is subject, may be a source of pain, from the strain upon the uterine ligaments, from pressure upon the vesical neck or urethra, or from a displaced ovary. The latter is especially not infrequent in cases of retroflexion, and may still exist when we have reduced the displacement and have apparently removed the exciting cause of discomfort and distress."—*Amer. Journal Obstet.*, *Jan.*, 1877.

REMOVAL OF THE UTERUS THROUGH THE VAGINA, FOR CARCINOMA.—A new operation.—Dr. E. Noeggerath reported a case to the New York Obstetric Society. Having clearly determined carcinoma of the body of the uterus proper, and as the uterus still appeared to have a degree of mobility—"it occurred to him to endeavor to remove the whole uterus entire, and thus to give the patient her only chance of recovery. The patient and her husband consented to the operation. His idea was first to detach the bladder from the vagina then to open the posterior cul-de-sac, isolate the broad ligaments and the uterus, pass an écraseur into the peritoneal cavity and around the broad ligaments and fallopian tubes, and separate the uterus from its attachments, employing two écraseurs if advisable. The uterus was then to be extracted through the vagina, abdominal section being performed only in case it was found impossible to complete the operation *per vias naturales.* The crushing of the laturæ uterine detachments by the écraseur wire would obviate all danger of hemorrhage.

Operation.—An incision with the galvanic knife was made into the interior vaginal wall, a steel sound passed in, and the bladder separated from the anterior wall of the uterus, which succeeded with amazing facility. Ellinger's steel two-branched dilator was then introduced, and the uterus entirely separated from its anterior attachments, and the peritoneal cavity opened. The posterior cul-de-sac was then opened with the galvanic knife also. The index fingers of each hand could then easily be passed up in front of, and behind the uterus and made to meet above the fundus, when they were separated only by the broad ligaments. Both ligaments were found hard and infiltrated, rendering an extraction of the uterus through the vagina a difficult undertaking. The abdominal cavity was therefore opened, and Péar's wire constrictem passed in, and the broad ligaments and tubes constricted. The hemorrhage was exceedingly slight. The operation lasted sixty-five minutes. On the next day the pulse was 120, temperature 102°, no peritonitis. On the third day gradual collapse, and death on the fourth day, from slow septicæmia. The uterus was found almost entirely detached at the autopsy, the wires having nearly cut through the constricted uterine detachments.

This is the first operation of the kind. It would be valuable in carcinoma of the neck only, even where infiltration has passed above the infra-vaginal neck, in which case all of the neck, as far up as the absolutely healthy tissue, might be removed per vaginum with the écraseur, after dissecting off the bladder in front and the loosly attached peritoneum behind."

In answer to a question by Dr. Thomas, Dr. Nœggerath said, that to prevent prolapse of the intestines after recovery from this operation, he would sew up the roof of the vagina, until firm cicitrization had taken place; also by raising the foot of the bed, as suggested by Dr. Thomas.

Dr. Thomas mentioned a French surgeon, who had excised the body of the uterus for carcinoma, drawing down the organ as far as possible, and leaving only as much of the organ as appeared sound. Dr. Sims has also long been in the habit, after removing the cervix, of drawing down the uterus in the same manner, and excising the uterus piece by piece, with knife and scissors, until he has reached the healthy tissue and perhaps, only a mere shell of the uterus is left. The hemorrhage is controlled by pressure and temporarily packing the cavity with cotton."—*Am. Jour. Obstet., Jan.*, 1877.

THE OBSTETRICAL ASPECTS OF IDIOCY.—Dr. J. Langdon Down read to the London Obstetrical Society a most interesting paper on this subject. His observations extended over 2000 cases. Primogeniture seemed to play an important part, no less than twenty-four per cent. of all the idiot children observed being primiparous. The total average number of children in the same families was 7.9. The number of idiot children who were primiparous was therefore nearly twice as great as it might be expected to be if primiparity had no influence. Probably a large number of primiparous children also were weak-minded without, being actual idiots. The cause of this preponderance might no doubt be largely attributed to the exalted emotional state of the mother, not forgetting the emotional condition also of the father, caused by the responsibilities and anxieties of the newly married state. The increased difficulty of parturition seemed also to be an important factor, and to be perilous to the future mental health of the child. A state of suspended animation should especially be avoided. No less than twenty per cent. of the idiots were born in this condition, and it apparently exerted much influence in the production of such a mental state. Of idiots who had been resuscitated out of such a condition, forty per cent were primiparous. As to the effect of instrumental interference, there was no evidence that it had any injurious influence. In only three per cent. of the cases had forceps been employed. Harm was generally attributed to them by parents in these cases, but in all he had found evidence of a neurotic history. He agreed with Dr. Ramsbotham, that forceps are not a cause of mental disease. Prolonged labor was much more compromising to the life prospects of the child, than a judicious and timely application of the forceps, since it was the prolongation of pressure which had the most injurious influence. Two per cent. of the last thousand cases were twins. In the families there were also two per cent. of twins not idiots. Twin birth, therefore, seemed to have an injurious effect, since of the twins in these families, no less than half were idiots. In many of the cases he had obtained a history of severe vomiting, falls, injuries, or hemorrhages during pregnancy. Severe vomiting on the part of the mother, seemed to have been specially injurious to the mental health of the child. In a large number of cases there had been fright, accompanied by syncope, or other severe emotion. A neurotic constitution in the mother had considerable influence, but the effect of external impressions proved to have been more important, though often complicated by the subjective condition. Of the 2000 cases the ratio of males to females was 2.1 to .9. This was probably due to the larger size of the head giving rise to prolonged and difficult parturition, continued pressure, and suspended animation. The greater tendency to convulsions in male idiot children, must be attributed to the same cause. When a neurosis was paternal, he had found that the male progeny suffered, and conversely. It had proved hopeless to get any results as to the effect of the administration of ergot, since the mothers generally did not know of its having been given, or were apt to give incorrect information on the subject." Dr. Cory remarked, that in a practice extending over twenty-five years, he had noticed no ill effect upon the intellect of the child from the employment of ergot during labor.

Dr. R. Barnes was not disposed to endorse the conclusion that difficult labor, even when it produced some degree of asphyxia, was an important cause of idiocy. It was related of Samuel Johnson that he had been resuscitated from such a condition, and he suffered all his life from singular nervous phenomena. But if developmental causes were excluded, he thought that the accidental cases of idiocoy remaining would be very few. He had himself not known any bad results to the future mental health of the child to follow from the use of forceps or version in contracted pelves, although temporary asphyxia was not uncommon in such cases. Some of the finest men he had known had been twin children.

Dr. Graily Hewitt had himself seen no facts, although he had had many cases of asphyxia, showing a connexion between obstructed labor, with pressure arising therefrom, and idiocy of the offspring. Dr. Beach, of the Clapton Idiot Asylum, and Dr. Spencer, of Earlswood, made remarks, showing their experience, to a great extent, was confirmatory of the views expressed in the paper of Dr. Down.

INJECTIONS OF HOT WATER IN UTERINE HÆMORRHAGES.—After an experience of two years with this treatment in the most difficult and the severest cases of uterine hæmorrhage, Dr. Windelband states his conviction that hot injections are invaluable and certain in their effect. They are preferable, when help is urgent, to cold and astringents of all kinds. In the numerous cases of uterine hæmorrhage which have come under his notice during the above period, the tampon was employed only once, and then only because, from the urgency of the case at night, no syringe or apparatus could be procured. In regard to the application of the method to pathological processes without hæmorrhage, single observations induce him to hope for good results, especially in dilatation of the organ, in displacements and relaxation of the attachments, etc. While making the injections, the patient always lies on her back, and a simple irrigator, which gives a continuous and energetic current, is employed. The temperature of the water at first is about 90° Fahr., and is raised, according to the urgency of the case, to 105° Fahr.; this can be done without fear, as the sensitiveness of the genital organs to the heat soon diminishes. One of the advantages of the method, besides its precise and prompt action, is, that the hot injections do not by any means cause unpleasant sensations and after-effects, as is always the case when cold is employed. Hot injections never leave any unpleasant or dangerous reaction; indeed, they are very pleasant and agreeable to patients suffering from pain.—[*D. Med. Wchschrft. Suppl. Med.-Chir. Wchschrift.*—*N. Y. Medical Journal, Feb.*, 1877.

HÆMORRHAGE FROM LACERATION OF ONE ROOT OF THE CLITORIS DURING CONFINEMENT, by Laroyenn (*Journal de Bruxelles*, October, 1875.)—Various lesions may be caused by the passage of the child's head through the vulva; perhaps among the rarest of these is rupture of one root of the clitoris, an accident to which Joulin first drew attention. Scanzoni mentions the occurrence of hæmorrhages of the vulva, which, by preference, originate from its upper portion, and obstinately resist the strongest hæmostatics; but he does not seem to have known the cause. On the other hand, Schröder, Klaproth, Winckel, Poppel, and others, have observed lacerations of the cavernous tissue of the clitoris, followed by almost fatal anæmia. In six cases the author has observed such lacerations, always in primipara and always on one side; three cases were forceps deliveries, in one the cephalotribe was used, and two were normal; the hæmorrhage was always abundant, and showed no tendency to cease, a peculiarity explained by the construction of the erectile tissue. Hæmorrhage from this cause is usually observed when instrumental aid is required, or in cases of slow labor calling for close attention toward the termination. The pressure of the child prevents the retrograde circulation, and the swollen cavernous bodies are pressed against the rami pubes; rupture of one of these, with the mucous membrane covering it, soon takes place more or less near the clitoris. Should the mucous membrane resist, a submucous, or a thrombus of the vulva, would be the result; this the author has never observed. Rupture of the erectile tissue with the mucous membrane gives rise to a sudden gush of blood; in some cases the blood is seen to come from small arteries. Well-applied compression can check the hæmorrhage, hence it is of importance to discover its source. A preventive measure may also be adopted by making two small lateral incisions, as P. Dubois originally recommended for the protection of the perineal commissure in cases of narrow vulva. As these incisions are made through but little vascular tissue, no hemorrhage from them need be feared.—*Med. Chir. Centralblatt.*—*N. Y. Med. Journal Feb.* 1877.

SPINA BIFIDA – TREATED BY IODO-GLYCERINE SOLUTION.—Dr. James Morton, Glasgow Royal Infirmary, reports: The child, with a spina bifida in the lumbar region, was brought to Glasgow to be under my care when nearly a fortnight old, and this was done from a fear that an ulcerated, or abraded surface on the most prominent part of the tumor might possibly result in perforation of the sac, and escape of the fluid, which is known to be so fatal. This abraded surface was more than an inch in diameter. There was no paralysis.

On the 14th of Sept. 1876, I saw and examined the tumor, and on the day following operated on it by puncture and injection of the iodo-glycerine fluid, which I have used and recommended for such cases. As the sac was neither very large (the size of an ordinary peach) nor very full, little escape of the serous fluid was permitted, and about half a drachm of the iodo-glycerine solution was injected. Collodion was, as usual, applied to the opening, and over that a square inch of lint dipped in collodion, which effectually closed the wound. No disagreeable symptoms followed: the sac seemed in part to solidify, and soon appeared to be about half the size it was previous to the operation.

Watching it from day to day, it did not seem to shrink rapidly or so quickly as I could wish, and on Sept. 26th the tumor was again punctured—and an imperfect injection was repeated. Next day the whole tumor seemed slightly inflamed, and has continued gradually to solidify. The following report of the case, in substance was sent to me on the 24th of Oct.: "Child well, tumor shrunk a good deal. Has a thick cord of skin raised all around it. There is still about the breadth of a shilling of thin bluish-colored skin covering the centre of it, but it feels firm to the touch underneath, and is nearly flat."

This is now the fourteenth case of spina bifida (of which we have any account) which has been subjected to treatment by injection of the iodo-glycerine solution, and of these eleven have proved successful. In all the lumbar cases which I have treated, it has been uniformly fortunate, and lumbar cases are known to be much more numerous than dorsal and cervical put together.—*London Lancet, Feb.*, 1877.

BELLADONNA AGAINST SCARLET FEVER.—Dr. J. C. Peters reported to the New York Academy of Medicine, "three cases of scarlet fever occurring in one family, recovery taking place in each. To the fourth child in the same family belladonna was administered for the purpose of protecting him from the disease, but it was contracted notwithstanding, and was the only case in the family in which it proved fatal.

Dr. Peters remarked, that his experience in the use of belladonna as a preservation against scarlet fever had been large and unfavorable. In looking up the literature of the subject he had found that Hahnemann recommended $\frac{1}{24,000,000}$ of a grain of belladonna, stirred in a glass of beer or milk as a preservative against the scarlet fever of Sydenham, which Sydenham himself declared would get well of itself, if not disturbed by the officiousness of meddling doctors. Against the scarlatina maligna, however, Hahnemann did not claim it to be preservative, but on the contrary regarded him as foolish who should so regard it.

[In one serious epidemic of scarlet fever, I employed belladonna very systematically as a prevention of anticipated attacks of the disease. I pushed the administration, in these cases, until I established the constitutional effects—dry fauces, dilitation of the pupil, and rash; the children thus treated, without exception, were my most marked and fatal cases.—E. B. S.]—*N. Y. Med. Record, March*, 3, 1877.

VARICOSE VEINS.—*Hemorrhage arrested by hot water.* Dr. L. Caro, (*N. Y. Academy of Medicine*) was called to attend a woman in labor, who was the mother of twelve children, and had had three miscarriages; she had never had any trouble in either labor or miscarriage. The doctor was called in haste on account of a sudden loss of a large quantity of blood from the vagina. Upon arrival he found that the fœtal heart was still beating, the labor advanced to the second stage, and the pulse of the woman very feeble. The vertex presented, and in the first position. The doctor was not able to satisfy himself with regard to the source of hemorrhage until by inspection blood was seen oozing quite freely from a ruptured varicose vein, near the outlet of the vagina. A flannel compress was wrung from water as hot as it could be borne, and the labiæ being separated, applied immediately in contact with the bleeding spot. The hemorrhage at once ceased. The pains being inefficient, and the uterus failing to respond to the use of stimulants, the child was delivered by forceps and was alive. After delivery there was a tendency to return of the hemorrhage, but it was easily and completely controlled by the hot water.—*N. Y. Med. Record, March* 3, 1877.

OBESITY AMENORRHŒA OF YOUNG WOMEN TREATED BY MILK DIET.—M. Tarnier was consulted some time ago by a young woman who had been suffering from albumenuria. She was very fat and had not menstruated for several months. He ordered only the vigorous employment of a milk diet; some months later he saw her again, and was surprised to find her quite slender in form, and presenting all the appearance of health. She had followed his directions to the letter, and the amelioration of the symptom had been rapid. First the albumen disappeared from the urine, and then the precocious obesity disappeared. Menstruation was gradually re-established as she grew thin, and her periods had began to occur at normal intervals. Shortly afterwards Tarnier ordered milk diet to a young woman who was very obese, and in whom there was absolute suppression of the menses. She had no albumenuria. The patient lost flesh rapidly, and menstruation was perfectly re-established. These cases possess much practical interest. Milk diet must be classed among the alterative medications, but it has the advantage of being well borne by the stomach, and of not disturbing the general health. In treating albumenuria with milk, M. Tarnier orders: For the first day one quart of milk with two portions of food; for the second day two quarts of milk and one portion of food; for the third day, three quarts of milk, and one portion of food; for the fourth day and afterwards—four quarts of milk, and no food at all.

In the treatment of obesity it is not necessary to adhere so vigorously to the milk diet; a small quantity of the ordinary food may be allowed. The patient may take the milk in such quantities, and at such times as she likes, provided she takes the requisite quantity per diem. The duration of the treatment will vary in different cases. If diarrhœa set in, it is a sign the treatment is not well borne. When the desired effect begins to show itself, it continues even after the treatment is suspended.—*Jour. de Med. et de Chir.*, Vol. 47, 1876.—*N. Y. Medical Record, Feb.* 10, 1877.

GLASS INSTRUMENTS FOR INTRA-UTERINE APPLICATIONS.—Dr. W. M. Chamberlain, of New York, proposes to render glass instruments less liable to the danger of breaking, by subjecting them to the recent process of annealing, which is performed by plunging the glass in boiling oil, while red hot. He very truly points out that glass is desirable for various surgical instruments because of the "facility with which they may be cleansed—the smoothness of surface—and the fact that iodine, nitric and chromic acids, etc., are harmless to this substance."

"Of material rendered tough by a similar process I have made canulæ which will, I think, be serviceable." (From the imprint of the wood-cut illustrations we suppose these instruments are to be obtained through W. F. Ford, of N. Y.—E. B. S.) Dr. C. proposes a catheter for office use of special value, where, as after delivery, by reason of septic lochia, any other instrument would become contaminated, and so a source of infection upon further use. Different sized canulæ are devised, "through the calibre of which a slender whalebone stylet, wrapped at one end with cotton, may convey to the interior of the uterus iodine, nitric acid, or any other escharotic, without the risk of its being applied in transit to the cervical rugæ.". (This mode of intra-uterine application, was anticiptaed some years ago, by the apparatus devised some years ago by Prof. Reamy, of Cincinnati. Indeed the instrument of Prof. R. is superior in plan, in some respects.—E. B. S.)

"No. 4 is a stout tube fifteen inches in length, and five eighths of an inch in diameter. The curve has been experimentally adapted for readily entering the puerperal uterus. The distal end is closed and rounded like the small end of an egg (paraboloid). Beginning half an inch from the closed end, on the posterior surface, and following a spiral line around it, are four holes, one inch apart, on the various faces of the instrument. These holes are made when the instrument is hot; the edges are therefore, glazed, and the strength of the instrument is not impaired, as it would be by drilling. They are also a little counter-sunk, to make sure that they shall not be occluded by applying against the shaggy endometrium. The holes are so arranged that a current cannot be thrown upon the orifices of the Fallopian tubes." This tube is intended to be attached to the rubber tube of a syphon irrigator or fountain syringe; and its purpose is to wash out the puerperal uterus."

The description of these instruments is followed by a translation of the views of Dr. Fritsch, of Halle, in regard to the use of carbolic acid or other antiseptic washes, with the lying-in woman, especially during the presence of puerperal fever. Irrigation of the uterus and vagina under such indications would seem to be particularly facilitated by the instruments made by Dr. Chamberlain. —*N. Y. Med. Record, March* 17, 1877.

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Reviews and Notices.

WHAT A LATIN PRESCRIPTION DID.

Readers of the late daily newspapers and medical journals, will remember the almost fatal mistake made by an eastern druggist, in compounding the prescription written, ℞ "Hydrarg. chloridi," using the poisonous article instead of calomel, as was intended. The point made by the critics in the above case, is well illustrated by a recent prescription made by a very learned professor in this city, who is considered as above the average in the great virtue with which he holds to the classics in executing his prescriptions, both as to components and directions. Being called to prescribe in a case, where he advised the use of the ice bag—a prescription was sent by the patient's daughter, a young lady, to the neighborhood drug store. The druggist examined the *ets* and the *cuis* in it, and felt sure he knew just what the doctor wanted — proceeded to fill the order, and a *French Safe* was nicely folded up and put in a suitable box labelled "use as directed" and handed to the young lady, who lost no time in gaining her home, believing that she held in her hand the great panacea for the family ills. Think of the blank surprise that fell upon the knowing ones of the family, who had gathered around to see the new mode of treatment that was going to wipe away the burning fever. A jury was at once called to advise, as to how it was to be pillowed upon the burning brow, when a wink from one, and a nudge from another, called all but the heads of the family away, when without longer delay they sent for the doctor, who quickly answered the summons and found that an explanation was in great demand.

Shades of the departed! Three languages failed to atone for the mistake of the druggist, who had not adhered to the rule "prescriptions carefully compounded."

Atlas of Skin Diseases. By Louis A. Duhring, M. D., Professor of skin diseases in the Hospital of the University of Pennsylvania, etc. Part II. Philadelphia: J. J. Lippincott & Co. For sale by Robert Clarke & Co.; each part, $2.50.

This part contains illustrations of Acne Rosacea, Icthyosis (Simplex), Tinea Versecolor. and Sycosis Non-Parasitica. The illustrations are very fine chromo-lithographs, royal quarto in size, and are accompanied by descriptive text, with notes of treatment.

At the last meeting of the Ohio Valley Medical Association, Dr. Reuben A. Vance, of Gallipolis, O., was appointed a special committee of one to investigate the influence of the Public Schools of the Ohio Valley upon the visual organs of the children who attend them. Dr. Vance would like to hear from physicians in Ohio, West Virginia and Kentucky, who are interested in the subject.

THE AMERICAN MEDICAL ASSOCIATION.

The Association convened at Chicago on the 5th. The meeting was well attended, and the sections conducted a number of debates with interest. There were in all 650 delegates present. The adjournment took place on the 7th.

The treasurer, upon retiring, reported unusually heavy expenses during the past year, but that he had a small surplus. The committee on publication submitted a lengthy report, urging that a medically educated stenographer be employed to supply the copy of proceedings for pamphlet publication, and making other recommendations. The committee on prize essays reported that only two had been submitted, and neither were worthy of the prize. The following officers were elected. President, T. G. Richardson, of Louisiana; Vice-presidents, White, of Buffalo, New York; Gunn, of Illinois; Russell, of Connecticut; Dunlap, of Ohio, with chairmen and secretaries of various sections of the country. Buffalo was selected as the place for the next annual meeting, and the first Tuesday in June as the time.

MEDICAL DEPARTMENT SYRACUSE UNIVERSITY.

Syracuse, N. Y., June 22, 1877.

Prof. E. B. Stevens:

In parting with our late colleague, Prof. Edward B. Stevens, M. D., the Faculty of the College of Medicine, of Syracuse University would testify to their appreciation of his many excellent qualities as a man, a teacher and a professional brother: We regret that circumstances have made it necessary for him to leave us, feeling that our school has lost one of its most experienced and capable instructors. (Signed),

FREDERICK HYDE, Dean.

W. T. PLANT, Registrar.

REVIEWS of a number of late works will appear in our next issue.

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THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

Vol. XX.—AUGUST, 1877.—No. 8.

Original Communications.

Article 1.—On the Treatment of the Cold Stage of Cholera Infantum.

By E. F. WELLS, M. D., Minster, O.

A paper read before the Shelby Co., O., Medical Society, June 7th, 1877.

Cholera infantum has been observed from the earliest ages, and appears during the hot season in every country on earth.* It is, therefore, a disease of great antiquity and of universal distribution. Although true that every part of the habitable globe is periodically visited by this Nemesis of early childhood, observation shows that the great centres of population of all lands are especially afflicted.

Not a little confusion has arisen in regard to the proper limitation of the term cholera infantum. Summer complaint, a name of popular origin, and cholera infantum, have come to have a synonymous signification within and without the profession. This is much to be regretted, as it tends directly toward causing confusion and inaccuracy. The expression, "cholera infantum", should be applied to to such cases only as present a striking, well-known and never-varying array of symptoms, bearing a close resemblance to, or being identical with, the sporadic cholera morbus of adults; reserving the more popular name, "summer complaint", for those other gastro-intestinal disorders of children occurring in summer, which pursue a more or less chronic course, and which are not easily made to assume their proper place in the nosological scale. The impropriety of allowing a single name to describe diseased conditions so varying in character as veritable cholera infantum, dysentery, entro-colitis, etc., is so apparent, that the point does not require to be enlarged upon. In this paper I shall consider the former malady only. I will preface my observations on the treatment of this disease by the statement of a series of propositions, the truth of which, singly considered, is acknowledged by leading writers:

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*Trousseau: Clinical Lectures. Phila. Ed. 1873. Vol. II, p. 454.

1st. Cholera infantum and cholera morbus are identical and the post mortem appearances are the same in both.[*]

2d. Cholera infantum is of great fatality.

3d. Cholera infantum is a self-limited disease, with a duration of not more than three days.[†]

4th. If the patient can survive until reaction takes place, he will generally recover.

5th. The indications for treatment are, to bring about reaction, restore the lost tissues and maintain the powers of life.

Symptoms.—A well-nourished, active, rosy-cheeked child is taken suddenly, generally at night, with profuse and active purging and vomiting, the discharges consisting at first of the contents of the alimentary canal and afterwards of clear or lightly colored liquid. The skin becomes cold, pallid, and looses its tonicity; beginning in the extremities, but rapidly extending to the trunk and head, which latter is at first extremely warm. The pulse is very rapid and can scarcely be felt at the wrist. Great and burning thirst is manifested in every case. The expression is pinched and the child has a look of age far beyond its years. The voice, as in sporadic and epidemic cholera morbus, is changed in tone and altered in pitch. After a while the vomiting becomes ameliorated, or altogether ceases; the stools also are less frequent and have assumed a greenish hue. The child is already greatly wasted; is pale, pulseless and cyanotic. With the fontanelles sunken, the abdomen relaxed, the urine suppressed, and the eyes half-closed and turned upward, the little sufferer lies drowsy, fretful, rolling its head from side to side; a picture of human misery, heartrending in the extreme, and one that must ever appeal to the humane physician to bend every energy to save and alleviate. Convulsions and coma often occur and are the direct cause of death in the great majority of fatal cases. If, however, the system rallies from the shock and reaction takes place, the patient usually recovers, and as there are no lesions involved which are of necessity fatal, convalescence is generally short and uneventful.

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[*] Flint: Practice of Medicine, 3d ed. 1868, p. 465. See also Leube in Ziemssen's Cyclopedia. Vol. VII.

[†] Edward Waldo Emerson, M. D., Boston Medical and Surgical Journal, July 27th, 1876. Flint, vol. cit. p. 465, states that when death occurs, it does so in one, two, or three days.

Trousseau, vol. cit., p. 457. says that if the cold stage continues for more than 24 or 26 hours death is almost inevitable. Dr. W. Walling. Am. Prac., Vol. II, p. 279, found the average duration of 33 cases ending in recovery, to be 15 hours, and the greatest duration was three days.

Treatment.—We can assert, without fear of successful contradiction, that of all diseases known to science this one is treated, by a large majority of practitioners, with a presumptious empiricism that finds its parallel only in the practice of a past age. The treatment now to be recommended, I offer, not for occasionally occurring, exceptional cases, but to be followed in every case of true cholera infantum as routine treatment.

The first indication is, undoubtedly, to attempt bringing about reaction, and to effect this object I know of no agent so sure and prompt as the mustard pack.* A cloth, sufficiently large to envelop the child from the feet to the chin, is saturated with highly sinapized warm water and wrapped suddenly around the child, the whole being covered by a thick and warm blanket. After the lapse of half an hour, more or less, the change in the appearance of the child, in case the treatment is to be successful, will be remarkable. Color and warmth will have returned to the surface; the tissues will have lost their pinched and old look, a natural perspiration will have appeared, the vomiting will have ceased and the alvine discharges will have become less frequent. The child is now to be taken from the pack and kept closely enveloped in a warm blanket.

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* Lindsey, Med. Gaz. 1832, Vol. IX, pp. 519—523, recommended mustard poultices in the treatment of the choleraic state, and since his day various modifications of this plan have been recommended by various authors.

Trousseau, vol. cit. p. 457, lauds the mustard bath.

E. W. Emerson, vol. cit. p. 98, advocates the pack, pure and simple.

Meanwhile the second indication, supplying the waste of tissues, is to be promptly met. It has been shown, again and again, that only the watery and saline constituents of the blood are lost; therefore to meet this indication absolutely nothing, save water in which a few grains of common table salt have been dissolved, is required. Here is my formula:

Water,	one pint.
Chloride of sodium,	10 grains.

This is to be given, ice-cold, as freely as called for; true it is that many times it will be soon rejected by the stomach, yet in any case more or less is necessarially absorbed, besides it tends directly to prevent further transudation of liquid. In extreme cases, intravenous injection of water at the temperature of the body (about 100°) should be tried.

Rapidly diffusible stimulants, such as ether and ammonia, are indicated on general principles, and are to be given as required. I wish to raise my voice in emphatic protest against the too common, pernicious practice of drugging little patients suffering with cholera infantum. The least familiarity with the principles of physiology and pathology would certainly enable any one to know that almost all the medicines generally used in the treatment of this affection require to be digested before they can be assimilated, and that in the algid stage of cholera infantum such digestion is totally impossible. Food, also, for the same reason should be interdicted during the continuance of this stage.

With the establishment of reaction, however, judicious dieting and proper medication may be made to accomplish marvelous results; but this leads us into a stage of the disease that is beyond the limits and scope of the present paper, and with which we do not intend to cope on this occasion.

In conclusion let me again call attention to the fact that I am not now treating of the summer diarrhœas of children, but of another, entirely different affection, vastly more formidable, and one which Leube declares can not be distinguished from the cholera nostras of the adult.

Art. 2.—Lithotomy.

Read before the Dubois County Medical Society, at Huntingburg, Ind., May 8th, 1877.

By W. R. McMEHAN, M. D., Huntingburg, Ind.

On January the 18th, 1877, I was called two miles below Taylorsville, Warrick, County, Ind., to see a boy ten years old. He was the son of Mr. F. P. Day, who was a very intelligent gentleman. I arrived at Mr. Day's in the afternoon, and while warming, the patient was pointed out to me as he lay sleeping quietly in bed. Mr. Day then proceeded to give me the following history of his boy's ailments: "That he had enjoyed good health from birth, until he was two years old. Then he had an attack of fever of several month's duration, supposed to have been caused by intestinal irritation, resulting from worms in the intestinal canal. For this supposed cause he had frequent doses of spirits of turpentine given to him. As time moved on he gradually improved in health, and by the time he was three years old, he was quite well, with the exception, as they supposed, of some kidney trouble which they had just at this time observed. This trouble was characterized by pains just after urinating; occasionally the flow of urine would of a sudden stop and a small quantity of blood would pass at the close of micturition." He also stated, that at intervals, varying in length from one to a few weeks, he would have paroxysms of extreme suffering, which would last from one to five days; during this time, when he would attempt to void urine, he would clinch hold of anything near him, stand on one foot, the thigh of the other extremity flexed on the abdomen and strongly adducted. In this posture he would stand for some minutes, suffering, seemingly, all that one of his tender age could suffer, until a small quantity of urine would pass, then he would become comparatively easy and perhaps sleep for some time. He also stated that at times he was troubled with incontinence of urine. The patient had been treated for a great many different ailments, a few of which I will enumerate as follows: Disease of the kidneys, bladder and stricture of the urethra. He had never been sounded for stone. His attending physician had frequently passed a gum catheter into his bladder to dilate a supposed stricture of the urethra.

As the father closed the recital of the above history, the patient awoke from sleep, and I found him to be a good looking, bright boy, below medium size, light complected, light hair, and of a nervous temperament. He had no fever, tongue clean, pulse weak. Then suddenly he screamed from pain, sprang out of bed and assumed the posture heretofore described, which he maintained during four or five minutes; then a small quantity of urine was passed, and he became comparatively easy and was replaced in bed.

I then made an effort to pass a common sized silver catheter into his bladder, but the catheter was too large to admit of easy introduction, and it gave him a great amount of pain; the effort was prolonged for some minutes without succeeding, and then given up. Then I administered chloroform by inhalation until he was fully under its anæsthetic influence, and in the absence of a better instrument, passed a uterine sound into the bladder, and as expected, heard the click of contact with stone and sound; the click was audible to all that were in the room. After obtaining as best I could, an idea of the size of the stone, I withdrew the sound, and informed Mr. Day that the only chance we had to restore his boy to health, was lithotomy; as the size of the boy, and size of the stone would not admit of lithotrity. The father readily consented, and Tuesday, the 30th of January, was settled as the time. The 30th came and accompanied by Drs. Williams, Schwartz, Johnson and Harris, of this place; we were joined by Dr. Rust, of Holland, and Drs. McVey and Temple of Taylorsville, and arrived at Mr. Day's at 11, A. M., and found, as directed, that the usual preparatory treatment had been carefully attended to. We gave him an enema, which soon passed away. He was then placed on a strong table in front of a window and put under the anæsthetic influence of chloroform by Drs. Johnson, McVey, and Temple. He was now placed in a position suitable for lithotomy. Dr. Schwartz introduced the staff and held it during the operation. The stone was again struck, with sufficient force to be heard by any one near the patient. Drs. Rust and Williams were to assist by sponging and handing instruments. All being in readiness, I introduced the index finger of the left hand into the rectum, and immediately withdrew it; this was done in order to secure a more thorough state of contraction of the rectum. The lateral method of operating was chosen. I commenced by making the first incision of the usual length, direction and depth ; the tissues were then carefully divided until we reached the triangular space, the base of which is formed by the transverse perinei muscle ; this was then divided. The staff could now be distinctly felt in the membraneous portion of the urethra, which was cut slightly, and the point of the lithotomy scalpel slipped into the groove of the staff and gently pushed into the bladder. The cutting edge of the knife was held almost parallel with the beak of the staff, so as not to cut the left latteral lobe of the prostate gland too deeply. The knife was now withdrawn, and the index finger, (by a continued rotatory movement of some minutes duration) was introduced into the bladder and immediately came in contact with the stone. The staff was now withdrawn, the forceps introduced, the stone seized, and removed by continued moderate traction. The interior of the bladder was then carefully explored for another stone, or incrustations of mucous membrane, with negative results. His bladder was now washed out, a rubber tube passed through the cut into the bladder, knees tied closely together, and the patient removed from the table to the bed. He came from under the influence of chloroform very nicely and had comparatively very little pain. Twenty minutes were required to perform the operation. There was about two oz. of blood lost. We gave gtt. v. of Magendie's solution of morphine, and ordered it repeated, as required, by the amount of pain. The patient was now left under the professional care of Dr. McVey.

On the following Sunday, the fifth day after the operation, I saw the patient (and learned from the Dr. that he had removed the rubber tube from the bladder on the second day after the operation, and that up to this time the patient had had but very little pain). I found him doing exceedingly well ; the wound seemed to be closed, for the most part, and urine had for the first time, that morning, ceased to pass through the cut and commenced passing through the urethra. The cause of this I supposed to be swelling of the divided structures, and expected, as I informed the attendants, that his urine would in a short time recommence passing through the cut ; but this confident expectation was not realized, as his father, who was his constant attendant, and Dr. McVey emphatically declared that there was not the least discharge of urine through the wound after the morning of the fifth day.

I saw the patient again, with Dr. Rust, on the fifteenth day ;

the wound had filled up even with the integumental surface, and about one half covered with cuticle. This is, I think, an unprecedented case of rapid union. Prof. Erichsen says (in his Am. edition from the second London edition, page 919): "That the urine usually ceases to flow through the cut for a short time, about the fourth or fifth day, but that this is due to swelling of the parts, which continues only for a short time, and then the urine recommences to pass through the cut and continues in a gradually diminishing quantity until between the fourteenth and eighteenth day, when it ceases." Prof. Gross says: "That the urine ceases to flow through the cut from the tenth to the twentieth day." In this case it was on the morning of the fifth day. I have no special treatment to which to attribute this rapid union, for his treatment was conducted on general principles. I have nothing to say in explanation as a supposed cause of this rapid union, except his age, condition, the limited extent of incision of the prostate gland, and its gradual dilatation. His recovery from this time was rapid and without an untoward symptom. The stone, which I will exhibit, is one of the uric acid formation, is oblong in shape, is one and eleven-sixteenths inches long, one and one-fourth inches broad, one-inch thick, and weighs nine drachms. As soon as the wound had healed, I prescribed an alkaline course of treatment, to correct the uric acid diathesis. Could not the turpentine, which was given for his supposed worm ailments, have produced a nephritis, that might have furnished a nucleus for stone—a cast of uriniferous tube or some coagulable substance? I tender to the medical gentlemen who assisted me, my sincerest regards for their assistance in the above detailed case.

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Art. 3.—Hyoscyamine in the Treatment of Insanity.

By W. H. DeWitt, M. D., Longview Asylum, Carthage, O.

It is only within the past few months that this drug has been brought to notice in the treatment of insanity. Its use in this country, I believe, has been confined to this asylum. At least we have no knowledge of it being employed elsewhere. This is perhaps due in a great measure to the difficulty in obtaining the drug, and the expense of the same.

As yet I have not had sufficient time to test the merits of the alkaloid as thoroughly as could be desired in the various forms of insanity, but will venture, notwithstanding, to present to the readers of the LANCET AND OBSERVER those cases in which it has been given with more or less success, hoping at some future time to give the results of a more extended observation. The first case in which the drug was employed was one of melancholia, alternating with mania *folie circulaire*. The patient had been maniacal both day and night for about one week, getting only an occasional sleep of short duration. Chloral and opium failing to quell the excitement as it had done in all of her former exacerbations of excitement, one grain of the *amorphous alkaloid* was given at bed time. Soon thereafter she became quiet and composed, but slept none during the night. On the succeeding evening the dose was repeated and was followed by prolonged and very deep sleep. She awoke comparatively rational and free from excitement. The dose was repeated with a view to its hypnotic effect, always producing quiet, refreshing sleep of several hours duration. There has been no reappearance of mental exaltation since the administration of the second dose. It would not be inopportune in this connection to state that her former attacks were of several week's duration, being in no way influenced by the administration of hypnotics ordinarily used in asylum practice.

CASE II. Intermittent mania of several year's duration. Patient was laboring under almost constant excitement, was excessively demonstrative in all her sayings and doings, being much of the time boisterous, incoherent and destructive. This condition had existed about six weeks previous to the administration of the hyoscyamine. The first dose of 1 gr. was given on going to bed and was followed by a quiet sleep of nine hour's duration. Upon awaking there was no appreciable change in mental symptoms. Second dose produced sleep, but no abatement of excitement the following day. Third dose quieted the patient, but did not produce sleep; remained free from excitement, requiring no more medicine.

CASE III. Chronic insanity with an occasional exacerbation of excitement. Gave 1 gr. of the alkaloid at the beginning of an excited period. Sleep was procured, but no improvement followed after awaking. Gave in all four doses. The last three doses being sufficient to bring about a favorable issue. During previous attacks enormous doses of chloral and bromide of potassium were given, followed by negative results.

CASE IV. Puerperal insanity of six week's duration. Patient had been excited and sleepless for several days previous to admission. When received was restless and disposed to violence. Delusions were prominent and characteristic. Suicidal impulse was strongly developed. Gave one grain of the alkaloid on the evening of her admission. Slept until morning; mental symptoms, however were not materially changed. Second evening, dose repeated—slept—condition unchanged. Third evening, dose repeated, slept none, rather more excited. Would probably have slept had she not been disturbed by the patient sharing her room. Fourth evening, slept uninterruptedly nine hours, less excited, delusions still numerous and obtrusive. Fifth evening, slept none. This was occasioned, I think, by delaying the administration of the medicine until quite late. No change in mental symptoms. Sixth evening, one grain given, slept quietly until morning; still excited. Seventh evening, quantity of medicine diminished one-half, slept none, but was quiet until the effects of the drug passed off. Eighth evening, one grain given, slept until morning. Ninth evening, same quantity given; slept none, but quiet as long as under its influence. Tenth evening, 1¼ grain administered; slept well, no change for the better in mental symptoms. Delusions in full force. Thought best at this juncture to resort to other means of treatment, the hyoscyamine having failed to bring about a favorable change. The fact must not be overlooked however that sleep was procured by this agent when given under favorable circumstances. I have given it with satisfactory results in a limited number of cases of chronic and subacute mania wherein insomnia was a prominent feature. The following conditions were observed after the administration of the drug:

Increase of temperature.

Increased force and acceleration of pulse, the number of beats per minute amounting in some cases to 130.

Flushing of the face and extremities, very decided in some instances and only slight in others.

Acceleration of the chest movements, accompanied at times by *deep* inspiratory and *prolonged* expiratory movements.

Muscular enfeeblement and partial abolition of cutaneous sensibility.

Constipation.

Dilation of the pupils. The inability to see well, was referred to by all who were sufficiently clear to express themselves. One patient declared his inability to read the head lines on his daily paper. All of these conditions diminished with each successive dose of the drug. In conclusion, from my limited experience, I feel warranted in saying that hyoscyamine is much more reliable as a hypnotic in the treatment of insanity than chloral or opium. While it is true chloral will produce sleep in most instances, it is also true that it is often necessary to repeat the dose as many as two or three times in order to procure several hour's sleep. It is rarely necessary to give more than one dose of the hyoscyamine. Again, there would seem to be nothing curative in the action of chloral, whereas the administration of hyoscyamine is followed oftentimes by very decided mental improvement, one or two doses in some instances being sufficient to inaugurate healthy mental action. I think this drug will be found most potent in the treatment of recurrent mania and melancholia with depression. It does not seem to be indicated in the very acute forms of mania. I have not yet had an opportunity of testing its value in the treatment of acute mania and melancholia.

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Art. 4.—Valvular Disease of the Heart.

Report of a Case read before the Ohio Valley Medical Society at the Semi-Annual Meeting, held in Ashland, Ky., May, 1877.

By J. BARR SMITH, M. D., Syracuse, O.

The following report of a case that occurred in my practice may be of some interest to this society:

On the 28th day of March, 1875, I was called to see Mrs. R., living about eight miles from my office. Age, 67; wife of a retired farmer in comfortable circumstances. I found her sitting in a chair, head inclined forwards. Pulse feeble, irregular, but not intermittent, tongue dry and dark, lips purple, haggard expression, extremities cold, some cough, no expectoration, great dyspnœa, no appetite; she said she had some distress over the region of the heart, but no pain.

Physical symptoms: There was the whrr or regurgitation murmur of the heart, not very distinct.

History: Had not felt well for a long time; first noticed she could not go up-stairs without stopping to rest; breath would give out, gave her palpitation of the heart; never had rheumatism.

Diagnosis: Valvular disease of the heart with probable dilatation. Prognosis unfavorable.

April 6, 1875—I saw her again with my friend Dr. C. R. Reed. Pulse feeble and irregular, dypsnœa increased; œdema of feet and legs, also face. The whrr or regurgitation murmur of the heart, distinct and unmistakable. Cough, slight expectoration. Could not lie down; sat on the bed, with her head resting on a chair placed on the bed before her; lips a darker purple.

Diagnosis confirmed.

These symptoms became more and more aggravated. Pulse feebler, debility greater, her lips the darkest purple I ever saw. Nausea and vomiting soon set in, vomiting two or three times daily. The dropsical effusion soon became general. There was but little pain at any time and no delirium.

On the 7th day of April, 1876, one year and nine days after I first saw the case, I was again summoned to see her. The messenger informed me that Mrs. R. was bleeding to death from the nose. Knowing the quantity of blood when caught on the clothes appears to the unpracticed eye much greater than it really is, and making allowance for the exaggeration of the messenger, I was not prepared to see the quantity of blood I found on my arrival. The epistaxis had continued about 12 hours, and a physician living in the village had been called in, who contented himself with blowing tannin in the nose. I found the blood oozing very slowly from the nose (one application of pr. sul. ferri. arresting the hemorrhage). Extremities and face cold and clammy, no pulsation at wrist, sight and hearing lost, or at least very much impaired, very palid. Ordered her lips wet with whiskey, and every eight or ten minutes tr. zingiber externally applied.

April 8th, 6 o'clock, A. M. She had rallied some during the night, could converse some, no delirium, no flush on face, very pale and bloodless. A feeble pulse could be felt at wrists, some warmth in extremities, no pain, very weak, swallowed a little egg-nog.

From this time she improved rapidly. In less than a fortnight all dropsical effusion, dyspnœa and vomiting had disappeared and she was able to ride out in her carriage. She now enjoys reasonably good health for a lady of her age. The heart murmur still exists. She had not taken any medicine for four or five months prior to the epistaxis.

This case is interesting to me because, first, with the feeble, irregular pulse, the heart murmur, the palid face, the dark purple lips, the anasarca, the persistent vomiting, the great debility and dyspnœa and exhaustive hemorrhage, there was at no time delirium. Second, the immediate amelioration of all symptoms and rapid recovery after the epitaxis.

Were we mistaken in our diagnosis? Was the excessive hemorrhage critical? Did the hemorrhage cure the disease?

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Art. 5.—Case of Tracheotomy in Croup.

By CHARLES KNAPP, M. D., Ferdinand, O.

On a Sunday morning in August, 1872, I was called to see a child four or five years of age, who had been suffering for about three days from croup, the symptoms of which had steadily increased in severity until they reached such a height, that it seemed, unless immediately relieved, suffocation would take place in a very short time.

Emetics of ipecac and of sulphate of zinc were first tried, but they failing to act, probably from partial insensibility of the nervous system, due to carbonic acid poisoning—nothing remained to be done but opening the trachea.

The situation was explained to the mother—a widow, and the only adult present to assist me—and she consenting, the operation was commenced immediately, as it had now become evident that death from suffocation would occur before any other assistance could be obtained.

Assisted then by the mother, who would desert me every few moments, carried away with grief, anxiety, and mental emotion, but who as often returned, the desire of saving her child giving her fresh strength and fortitude; I performed the operation below the isthmus of the thyroid gland—lower operation—as nearly as possible in the manner described in the text books. The instruments used were a scalpel, a tenaculum, and two wire hooks or retractors, constructed for the occasion out of a piece of wire found in the house. With these hooks the opening in the trachea was kept patent for about two hours before a trachea-tube, kindly loaned me by Dr. Kempf, could be obtained.

Great relief followed the operation, but broncho-pneumonia set in, and the patient died on the third day after the operation.

There is nothing remarkable in this case, and it is reported only for what statistical value it may have. But I will say that great difficulty was experienced in reaching the trachea, and in a similar case, I would now prefer the operation above or through the isthmus of the thyroid gland.

Art. 6.—Tabes Pulmonum, or, Phthisis.

By CHARLES G. POLK, M. D., Phar. D., Philadelphia, Pa.

By the term Tabes Pulmonum, the entire range of pulmonic disintegrations is included, whether they be the consequence of lymphoid deposit, and subsequent caseous morphology, or result from the irritation induced by tubercular deposit in the pulmonary parenchyma. This inclusive term seems to be demanded by the present position of pathological science. Recent investigations confirm the views of Addison, that tubercle is often absent in the most rapid and extensive disintegrations, and that even when extensively present would possess but slight importance did they not, by the irritation they induce, awaken a low disorganizing form of inflammation which involves the pulmonary tissue, and damages beyond repair and restoration the respiratary apparatus. Tubercle, however, does play a very important part in the role of phthisis, in fact, constitutes by far the greater source of tabes pulmonum. Virchow and Niemeyer and Addison, in the enthusiasm of a new disclosed fact, have led the medical world to ignore too largely the favorably accepted opinions of Louis, and to attribute all pneumonic lesions, tubercle included, to inflammatory ulceration. Admitting, as we must, that cut sections of bronchial tubes, thickened, softened, dilated, and containing in their cavity muco-purulent fluid, have been mistaken for tubercle; as also lung tissue which, by the process of inflammation, had become hepatized and assumed the granular form and appearance, have led to equally erroneous conclusions; it is not less true that these voyagers into the hitherto unexplored seas of pathological science have committed even graver errors in ignoring the tubercular origin of vast vomicæ, because tubercles are not found in the residue of the pulmonary tissue, forgetting as they do, that even a large deposit may have been excavated and removed with the missing lung parenchyma. On the other hand it may be as surely admitted, that even when a moderate tubercular deposit is present, that it may exist as a coincident—an unimportant companion of a rapid case of pneumonic phthisis—or more properly speaking, scrofulous pneumonia. It may be then accurately stated that scrofulous pneumonia is not dependent upon tubercle or even a tubercular diathesis for its origin, progress, or consequences, and may run either a rapid or tardy course, innocent of any assistance from tubercle, demolishing lung structure until it is inadequate for the purposes of life, while on the other hand it is possible that tubercles may be extensively deposited, occupy a large portion of the lungs, and yet awaken tubercular pneumonia. In this case however, the tubercle undergoes an oily metamorphosis, the fatty elements are absorbed, and calcareous bodies left in the lungs, and which may be and often are expectorated. Unfortunately however, this is not the usual result. The irritation the deposit excites, awakens a low, disorganizing form of inflammation, —tubercular pneumonia—generally terminating in death. From this view we are brought to the consideration of two very fatal maladies, separate in their origin, different in their course, yet having several points of resemblance which have heretofore caused them to be regarded as but modifications of a single lesion, the consequent of a single cause, and to be embraced under a common name, phthisis pneumonia. I believe this error has been an impediment to the attainment of correct pathological deductions, and the judicious application of remedial agents. One disease is a modified plegmasia, closely allied in its nature to a continued fever, while the other is a zymotic poison, in some yet unexplained manner developed in abnormal nutrition, and assimulating septicœmia in its pathology. To draw the distinction between these, to give each its position and assign to each an unobjectionable name, is the purpose of this paper.

Scrofulous Pneumonia.—In 1858, when I wrote my thesis for the Faculty of the University of New York, this was regarded as being even of doubtful existence; then the microscope had scarcely been called to the aid of the pathologist, and the non-inflammatory views of Louis controlled the opinion of both English and American physicians with a very few exceptions. Dr. Martyn Paine, of the University of New York, ever maintained ultra views in the opposite direction and scarcely drew a line of distinction between tuberculous and plegmasia. The influence of his teachings led me to investigate the phenomena presented in diseases involving destruction of the respiratory apparatus, both clinically and miscroscopically, to ascertain wherein Dr. Paine was correct, and wherein Læennec and Louis and their followers erred. In the dead-house I found many labelled phthisis, in whom I failed to detect a tubercle, notwithstanding extensive vomicæ were present. In such cases, I also noticed that the pulmonary disorganization resembled more closely the consequences of inflammation than that presented when tubercle was found. Other organs of the body also, it seemed to me, presented different classes of lesions. The mucus membranes exhibited more extensive ulceration and had departed with their vital continuity in a much more obvious manner in the non-tubercular. In studying the history of the progress of both classes, those which were tubercular and those that were non-tubercular, I found both equally liable to assume either a rapid or a chronic type. A very large per cent. of the non-tubercular cases seemed even more intimately associated with the scrofulous diathesis than the other—many having suffered in early life from the consequences of glandular swellings, inflammations and ulcerations. The pneumonic trouble could also be generally traced to its origin in a catarrh, bronchitis, or a pneumonia, which was either neglected, or run on in defiance of treatment into the scrofulous form of chronic pneumonia, with extensive pulmonary disorganization. And I also met with mixed cases, whose history led me to infer that an autopsy would reveal no trace of tubercle; yet upon examination they were found occupying quite extensively the alveoli. It however may be in such cases that tubercles were present even before the advent of the pneumonia, and merely constituted an unrelated complication, but I always deemed it probable that the consequences of pulmonary disintegration assisted in inducing the faults in the digestive and assimilative functions, which I will hereafter show to be directly concerned in the development of tubercle, and acted at least as a concurrent cause in awakening into activity the dormant germ, nurturing its growth and assisting its development. And again, the irritation induced by tubercle was found to have caused extensive inflammation, hepatization, tyrosis and tissue disorganization, but the history of these cases differed, a dry hacking cough, burning in the palms of the hands, with a slight elevation of the temperature, had in every case preceded the eruption of the pneumonic inflammation. A very large per cent. however had began so insidiously that it was difficult to trace them back to the initial lesion—the deposit had taken place, and a large portion of the lung damaged, without a decided manifestation of the mischief then in progress. I have been frequently astonished at the very slight-observable evidence in the general symptoms of so important abeyance of a very important vital organ. It thus seems that tubercles are not really so formidable in the injuries they directly inflict by intrusion into the lung parenchyma, as in the irritation their presence induces and the inflammatory processes which follow in the result. These observations led me to divide phthisis pulmonalis into tubercular phthisis and pneumonic phthisis. Although having many characters in common they presented others so diverse that I cannot any longer regard them as the emenations from a single, cause or consequences sufficiently identical to justify a common appellation. In fact, the variations are sufficiently obvious to enable the physician to recognize one from the other.

The precise manner in which tubercle originates—the initial lesion—and the successive links of the chain of causation, is yet a vexed question, inducing various theories and leading to much theoretical discussion. Churchill, of Paris, advanced the theory that tubercle originated in a deficiency of phosphorus in the system in an oxidizable form, and basing his treatment on this hypothesis, proclaimed with much confidence that he had discovered an unerring specific in the hypophosphites of lime and soda. Unfortunately for his theory, the remedies based upon it abjectly failed to sustain his confident assertions, although proving to be of exceeding value in conjunction with cod liver oil in retarding the succession of morbid phenomena. Dobell imagined that he had discovered the fountain head of this stream of death in deficiency of pancreatic juice, by which the fatty and oily elements were imperfectly emulsified, and consequently not sufficiently elaborated for the purposes they subserve in the animal economy; of which the maintainance of animal heat is no doubt a prominent one—that owing to this deficiency of pancreatic juice and the mal-assimilation of the fatty elements of the food, adipose tissue is consumed as a source of caloric, and the blood altered in its constituents, contains an excess of modified albuminous agents, which being imperfectly vitalized, exudes into the pulmonary parenchyma and eventuates in the morbid body we term tubercle. In order to remedy this he administered pancreatic juice artificially obtained from animals and emulsioned, hoping to thus contribute the required agent and remedy the lesions emenating from the deficiency. But with Dobell, as with Churchill, he had only recognized an effect, while the above, the real cause, remained as yet beyond human ken. John Hughes Bennett, of Edinburg, among other valuable suggestions, called the attention of the profession to an excessive amount of acid in the small intestines as one of the conditions of tuberculosis. Buhl attributed tubercle to the development of a peculiar tuberculous virus, generated in the caseous metamorphosis of the albuminous exudation into the lung tissue, generated in a somewhat similar manner to the poison of septicæmia, from a suppurating abscess or stump of an amputated limb. Copland with his great philosophic mind and vast experience, attributed its origin to inefficiency of the organic nervous system, and viewed the immediate consequence of this aberration to faulty digestion and imperfect assimilation. Læennec and Louis layed the blame on what they termed a tuberculous diathesis, and ignored entirely the influence of catarrhs and inflammations. Virchow on the other hand, regarded tubercle as inseparable from inflammation—in fact a mere coincident which may happen during pulmonic disintegration, and Niemeyer expresses his pathological convictions in saying that " the worst thing that can happen to a phthisical patient is the development of tubercle."

Churchill, Dobell, Bennett, Copland, Lænnec and Louis, each recognized consequences, and these consequences woven together form, as far as they go, a web of truth, but each considered individually fails to give us enlightened scientific and practical views of the lesion, or suggest a course of treatment adequate to its removal. Virchow and Niemeyer seem to found their entire pathological belief on what they had observed in caseous or scrofulous pneumonia, and is erroneous in relation to the true tubercular form of phthisis.

I have observed, that in a very large portion of cases, the very first manifest aberration is derangement of the functions of digestion. In some the stomach is in fault and the usual train of symptoms of dyspepsia are evinced; the desire for food is in an important degree impaired, and ordinary articles of diet are not well tolerated; but in much the larger portion the appetite is good, and all substances that are not of a fatty nature are digested without inconvenience, in fact the gastric digestion in many cases rather exceeded than fell below the normal standard, but the lesion noticed by Dobell is however more uniform; fatty articles of food and oils are nauseous, often loathsome, and in addition to the repugnance they generate, they also cause disagreeable eructations, pyrosis, generally pain in the duodenum and sometimes diarrhœa; attendant upon this, the tissues shrink, the eyes settle in their socket, and evidences of general malaise, give the first admonition of the worm which is withering the very bud of existence. But notwithstanding, we perceive the first lesion in the digestive functions—discover the fault to be as stated by Dobell—deficiency of pancreatic secretion inadequate for emulsion of the fatty elements of the food in a very large number of cases; it is by no means a universal and inseparable one. With many no inconvenience is experienced in either eating or digesting oils and fats; neither is there any marked evidence of defective nutrition long after the lungs are stuffed with tubercles, proving conclusively that the often observed pancreatic lesion is not autotoles, in itself sufficient to produce all the prodroma which originate in and follow tubercle through its various stages of development and disintegration. Dobell, while reconnoitering in the proper direction, has but reached an outpost angle in the line of tubercular processes, has reached a consequence rather than a cause.

Copland's view takes in a much larger field, in fact embraces the immediate power which presides over the functions of both the thoracic and chylopoitic viscera, while Churchill, looking to the very fountain head of life, the cerebro-spinal nerve system, sought the cause in the deficiency of an element occupying an important relation to nerve function. It may however, be seriously queried: Why comes the deficiency of phosphorous, and it may also be added, hypophosphorous acid in combination with fats, or how it comes to pass that the organic nervous system is recreant to its duty? It cannot be that either phosphorous, or hypophosphorous acid and phosphoric acid are not sufficiently present in the food the consumptive eats, or the water he drinks. Such an idea is set at naught by the fact that the phosphates are exceedingly abundant in the urine, implying a more probable lesion in the phosphatic eliminating function than in the phosphorus assimilating function, and in addition to this we also find quite frequently oxalic acid in the urine. When we take into account the great value of nitrogenous elements of food—how indispensable they are to health and even to the sustenance of life itself, it seems natural to me to link the presence of this oxalic acid with the first prime origin of tuberculosis. Its frequent absence however, denies its original authorship and consigns it to the position of an effect, not a source. It points to some chemical process wrought in the system between glucose and some nitrogenous principle, but where or in what manner I have never been able to determine. We only know such is the case, and that phthisical patients thus producing oxalic acid in the urine are especially benefitted by nitric acid, in fact more than by any other known agent. This may give some coloring the hyper-oxidation theory, but it is more rational to attribute the formation of oxalic acid to some unrecognized aberration in the digestive and asimilative function. And so we can also seek the cause of the deficiency of phosphorus and hypo-phosphorous acid in combination with glycerine and fats. It is well-known that the functions of digestion, assimilation and sanguification are under the control of the organic nervous system, and that furthermore, the portion of the organic nervous system which is immediately concerned in these processes is connected with the cerebro-spinal nerve system—forming the excito-secretory nerve system, which is indeed the field-marshal in the direction of the duties performed by the various vital organs. But every animal phenomena is under the dominion of the brain, every organ, tissue and cell is modified by its influence. The mysterious, electric-like current it sends forth impresses both normal and abnormal conditions. Every passion, every desire, every emotion, every joy, and every grief is a factor of health or disease. Joy, hope, ambition and success heighten the vital standard, they invigorate every organic function, send the blood with an accelerated pace through the veins and arteries, bearing the elements of cell growth vivified to the highest degree—the digestive, assimilating and sanguifaciant functions are stimulated to new vigor and performed with efficiency, health is exhalted where it already exists, and every constitutional predisposition held in abeyance, while on the reverse, grief and depressing passions and emotions equally lower the vital standard and awaken already existing diathesis. In accordance with this law, we find mental influences playing prominent parts in the dramas of health and disease. Depressing emotions act directly upon the respiratory apparatus, they seem to draw off the nerve stimuli which control the expansion and contraction of the thorax in inspiration and expiration, and induce a quiescence in the circulation of the upper lobe, which may directly lead to tubercular deposit, if the other circumstances and conditions be present.

Although I have never seen this point referred too, I have frequently observed it and believe it contributes an important part in determining the depressing influences to localize their consequences in the lungs. The medulla oblongata is however the vital knot—the throne of life—the fountain of all its phenomena. The entire dominion of organic and animal processes are subservient to its authority, and yield obedience to its mandates. If it be a feeble monarch, confusion and corruption will enter its empire, external and internal foes will conspire against it, its subaltern officers will be recreant to their duty, and the embattlements of health will be stormed and carried by morbific agencies. This is precisely what we witness in tubercular phthisis. The influence of the vital principle is not efficiently given—the organic nervous system is not supplied with its functional power, and the consequences of this inefficiency is evinced in all the organs and tissues over which it wields control. The strumous dyspepsia so fully described by Clark; the pancreatic deficiency of Dobell; the derangement of the organic nervous system of Copland; Parola's theory of imperfect functions of the lung insufficiently compensated for by the function of the liver; the acidity of the intestinal canal and modified relations of the fats, oils and albumen described by Bennett, are each and all but manifestations of defective life force, and developed by aberrations resulting from depressed nerve power. Churchill recognized a consequence closely connected with the cause in its own defect. I believe there is much truth in Churchill's theory, and probably more in the one I wrought out fourteen years ago (1857), that the earliest departure from health consists in some unascertained modifications of the oxydes of phosphorus in the system, both as to quality and quantity, interfering with the part they play in vital processes, especially as factors of nutrition and assimilators of oxygen. In claiming for phosphorus, in its various formulas an important relation in the origin and development of tuberculosis, it seems to me that the importance of the subject justifies me in entering into a somewhat detailed consideration of the relations these sustain to—life, health and disease—their importance to vital vigor on the one hand, and the deleterious consequences of their deficiency on the other.

In fact, without a brief resumé of the relation sustained by the phosphoids to the functions of nutrition, as well as those which appertain especially to the nerve masses, the connective chain between the deficiency of the phosphoids and pulmonary consumption will not be established, and many of the opinions advanced in this paper may seem to be mere assertions without inductive evidence, and their accuracy scarcely determined.

Realizing the fact that the human organism is beautifully and wonderfully made, that omniscience is displayed in every atomic formation, in every cell, in every chemical constituent, the ubiquity of the phosphoids in every elementary constituent of the human organism, suggest that they must sustain high relations and perform important functions—functions inseparable from both organic and nerve life, without which nutrition is impossible, and the nerve masses void of sentient or motor power.

The diversity of the formulæ in which the phosphoids exists indicates the subservance of a diversity of purposes. No one of the compounds of phosphorus, whether it be in the formulæ of a phosphide, a hypophosphite, a phosphite, or a phosphate, embody autotoles in itself all the requisites for the high and important mission which devolve upon the several phosphoids. Their protean duties demand protean types, and phosphorus alone, of all the elementary substances, possesses the varying characters adequate to these duties. Phosphorus can not remain phosphorus in the presence of free oxygen. Dissipated into vapor and brought in contact with heated metals it unites with them, forming phosphides; placed in a bell-jar containing the binoxide of nitrogen, it is transformed into tribasic hypo-phosphorous acid; if boiled with milk of lime or with barium, the result is mono-basic hypophosphorous acid, the hypophosphorous acid contained in the hypophosphites of Churchill. If phosphorus be placed in a funnel in a moderate temperature and the funnel inserted into the neck of a bottle, the clear, sour, dense liquid which will be preserved in the bottle will be phosphorous acid. If burned in dry oxygen under a bell-jar, a white deposit will be obtained—anhydrous phosphoric acid of the monobasic variety, if however the phosphorous be decomposed in the presence of, or by nitric acid, the tribasic variety of phosphoric acid results. These various hydrates of the oxydes of phosphorus would be simply interesting and mysterious, but without therapeutical interest if they did not display certain chemical and physiological attributes which vary their intrinsic merit, as components of the human organism and also as therapeutical agents. Monobasic acid coagulates albumen, abstracts water from the tissues, is entirely absent from plant life, and only in the muscles of animals in combination with potassium. Added to a water, which the anhydrous acid siezes with avidity and combines with the alkalies, the compounds do not become organism and furnish materials for cell development, and yet are not entirely destitute of therapeutical value. Although the soluable lime base it forms has no use in medicine, the monophosphate of ammonium is one of the most efficient therapeutic agents we possess for rheumatism. Pure monobasic acid administered for a considerable time *will induce* rickets, consequently it is valuable in the phosphatic diathesis. The bi-basic may be obtained by heating either a mono-basic or tri-basic salt to redness and isolating the acid from the base. It is unquestionably the condiment and tonic hydrate. In the human organism it is found in the blood, holding sodium as its base. The important part it sustains in equalizing the distribution of the carbonic acid in the blood will hereafter be presented. The pyrophosphate of iron has an immense popularity. The tri-basic hydrate is the one which especially subserves the purposes of nutrition, and without which there is no life.

The three hydrates also possess the power of forming between themselves innumerable transitions and combinations. These varied transitions result either from its avidity for oxygen or water, the hydrates by the water, the oxides by the oxygen. For oxygen the affinity is strong and from this affinity phosphorus derives its cameleon character. Life, we will know, is inseparable from oxydation, consequently every physical exertion, every respiratory action of the lungs, every contraction of the heart, every digestive process of the stomach, every act of assimilation and sanguification, every mental phenomena, every thought, every passion, every desire, converts a phosphoid compound into a new formula, and in the changes continually accruing in the human organism, these phosphoids become especially prepared for the parts assigned them in the grand purpose of creation; phosphoric acid seems to be inseparable not only from animal but organic life. The uniformity of its presence in both animal and vegetable organisms indicates that it sustains an important function in both these kingdoms and seems to justify the aphorism—without phosphoric acid there is no life. Last year, (1870) I instituted a series of experiments to determine the value of the phosphates in the processes of nutrition. I removed all the phosphates from the food of three dogs, but gave them an abundance of the dephosphated food and confined them in a kennel. In a few days they evinced an almost uncontrollable degree of hunger, walked around their kennel, restless and imploring relief. In a week they evinced rapid emaciation and I am sure if the treatment had been prolonged they would have perished from hunger, but upon restoration of food containing the organic phosphates they rapidly regained their health. A medical friend of mine thought I placed too high an estimate upon the value of the results obtained, and suggested that I should remove the organic phosphates from the food, isolate the phosphoric acid from the salts, and recombine it with calcium and sodium, and give them with the food. I applied this test to a dog. He suffered no inconvenience; I withheld the phosphates from the food for a few days, and he evinced evidences of starvation as observed in the previous cases. Although I was not aware of any one having made similar observations, I have subsequently learned that there had been previous experiments and that others had arrived at similar conclusions as to the essentiality of phosphoric acid in the phenomena of life. These facts connected with the invariable presence of phosphoric acid, prove its value in the processes of nutrition, and elevates the aphorism of Horsford to the position of an axiom. Accepting then as axiomatic: "That without phosphoric acid there is no life", the conclusion follows as a corollary, that whatever diminishes the quantity, or deteriorates the quality must depreciate in a corresponding degree the nutritive functions, lower the scale of vital vigor, and induce conditions of constitutional deterioration. Food containing a small per cent. of the phosphates, as also a deficient supply of food in which they may be relatively present, by not contributing the amount of the vitalized phosphates necessary for health, induces scrofulous, tuberculous and scorbutic conditions of the system. The long entertained idea that food stands in relative value to the amount of nitrogen it contains is no longer tenable in the light of modern science. Beans and peas are very rich in nitrogenous constituents, and also contain a considerable amount of the phosphates, and yet they are only moderately nutritious. Liebig, recognizing their inefficiency as articles of diet, attempts to explain it on the ground of the small amount of phosphates they contain. This view is scarcely satisfactory, we must seek still further to reach the explicable cause. The phosphate of lime they contain principally belongs to that class of phosphates that are non-nutritious, being to a large extent insoluable in water, and relatively to its insolubility are they void of nutritient power. It is not enough that they be present in the food, but they must belong to the organic variety or else they are incapable of taking part in vital functions. We may then amend the aphorism of Horsford, so as to say " without organic phosphoric acid there is no life." Wheat is recognized as embodying all the constituents necessary for the support of human life. It, I believe, is the only single aliment which attains this standard, and yet wheat contains a much smaller per cent. of nitrogeneous constituents than either peas or beans, but analysis discloses this singular coincidence, the lime base is in association with an acid giving all the reactions of cerebric acid, and this phosphoid also resembles in every characteristic the kephaline of the brain. Take wheat and isolate the phosphoid principles and the result is very similar, it has all the characters of the product with the cerebrin described by most histologists. Wheat also contains a considerable amount of the phosphate of calcium, of the organic variety, hence it contains the phosphoids required in both brain and nerve function, as also in those functions we term organic, hence it embodies the elements required in organic and nerve life, consequently man can live upon it in the enjoyment of health of body and vigor of mind. There is probably no better accepted fact than that wheat comes next to milk in the diet of infants. The preparations of wheat in every drugstore gives evidence of its extensive use by mothers to their babes. The explanation is found in the similarity of their phosphoids. Milk contains both cerebric acid and phosphoric acid with calcium, magnesium and sodium as their base, in association with casein, albumen, oleo phosphoric acid and glycero-phosphoric acid. The infant bone at birth contains the magnesium and calcium in the form of a phosphite, consequently it seems at this period that the phosphates are only employed in the functions of nutrition, while the cerebric acid undergoes oxidation and become a phosphite. As the child grows, the lower oxyde is replaced by the phosphoric acid of the insoluable or inorganic variety, and firm, unyielding phosphate of calcium replaces the phosphite of calcium and magnesium.

These facts have also a practical bearing upon the ætiology of consumption. The opinion is well received that both scrofula and tubercle are diseases in which malnutrition exerts a powerfully exciting influence. The children of the poor are frequently pale, feeble, of low vital endowment, from the inadequacy of food; in childhood they are liable to scrofulous abscesses, or if they reach adult life, they are predisposed to tubercular disease. On the other hand, children that are well fed and supplied with food rich in organic phosphates, enjoy an immunity from scrofula in childhood, and are less liable to tubercular disease in manhood. But many children are really starved who are supplied with an abundance of food. The quantity does not compensate for the quality. As an example: Last December my wife gave birth to a babe—he was healthy and vigorous when born, he soon emaciated, became sickly and in a few weeks seemed to be the victim of marasmus, or rather starvation. Suspecting the cause I analyzed his mother's milk and found it very deficient in the phosphoid constituents although abundant in quantity. We weaned him, placed him on cow's milk and added to the milk the phosphoid constituents of bran. He rapidly became a strong, vigorous boy. The miserable scrofulous set of children which are found in our public charities attest the deleterious consequences of improper diet. The inference then is, that a milk diet is to a certain extent prophilactic against tubercular disease. Experience seems to corroborate this view. Upon the plains of Tartary a very large amount of mare's milk is consumed by the inhabitants, and those using it are exempt from tubercular disease. Consumptives going there frequently recover their health under its use. Admitting as we must, the dry salubrious climate of Tartary, and the advantage of exercise in the open air on horse-back, it cannot be gain-said that these cannot produce such results without mare's milk. Chemical analysis has demonstrated the superior richness of the mare's milk over the milk of all other animals except the goat's in the phosphoids, and the inference must necessarily be that much of the result depends upon the large amount of the compounds of phosphorus. In the same line of evidence we find eggs and oysters, aliments rich in phosphoids, are of efficacy in the various forms of tubercular diseases, as well as those suffering from brain and nerve exhaustion, as also those in whom there is debility of the procreative functions. The connection between sexual exhaustion, drain of cerebric acid and development of consumption will be hereafter considered. From the line of argument here pursued, the conclusion must be that articles of diet are valuable in direct relation to the amount of the phosphoid principles they contain; that nutrition is inseparable from the presence of the phosphates and that food destitute of these cannot sustain animal life. I think also we have arrived at another fact—the phosphates elaborated in the laboratory of the chemist do not correspond with those developed in the alembic of the vegetable kingdom or of animals. From the experiments upon dogs, it will be noticed that as soon as the nutritious phosphates were removed from the food they began to wane, and the substitution of the laboratory made phosphates did not compensate for the loss. If this idea be accurate, it is an important one in a therapeutical point of view, explaining the general failure of the ordinary phosphates as remedial agents, and establishing the fact that it is only those organized in the vegetable and animal kingdom that are nutritient, assimilable, and can give back to the human organism the required constituents. The fact has been already noticed, *en passant*, that the phosphoric acid found in plants is different from ordinary phosphoric acid—that it forms soluble bases with calcium, manganese and iron—bases that are soluble in water—a fact first announced by Professor Horsford. Furthermore the phosphates found in the urine in health belong to the insoluble variety, are the products of tissue disintegration, have served their function and are thus excreted. In phthisis and in scrofula the soluble variety appears in the urine, showing that there exists in the organism a lesion in the assimilating function, the consequence of modified nutrition and the result of butyric acid in the duodenum, which is a consequence in itself of butyric fermentation, depending upon and growing out of inefficiency of the pneumogastric nerve.

The comparative difference of the assimilability of the two varieties of the phosphates, positively proves the destitution of value of the insoluble variety as remedial agents, and moreover this law of assimilation will appear of great moment when we come to apply it to defective nutrition and the part it plays in the development of tuberculosis.

But the lesions in the digestive function are but expressive of lesions in the nervous system—in the modified excito-nutrient nerve function. Going a step further we find modified excito-nutrient nerve function derives its modification from modified influence from the medulla oblongata, it as well as all the nerve masses in which nerve influence is generated, contains certain phosphoid principles absolutely indispensable to nerve function. "Without phosphorus" says Liebig, " there is no thought," and Agassiz has demonstrated that they are employed in every brain or nerve phenomena, are the food of the brain, and sustain as important a relation to nerve power as nitrogen does to muscular integrity, or carbon to the sustaining of animal heat. It may be truly said that they are the especial medium by which the immaterial essence—mind—and the unanalyzed and mysterious principle—life—are connected with physical structures. The high relation they sustain to nerve power and the mutual dependence of both organic and animal functions upon the normality of nerve influence, associates them intimately with both physiological and pathological phenomena. As a medical student—Professor Paine taught me to look to the nerve masses as the point of emanation of vital operations, whether normal or abnormal, while Professor Draper directed my attention to the dependence of life upon chemical conditions. Through these far diverging instructions, I began in 1857 the study of the brain and lungs to fathom the mysteries of tubercular consumption, I found that the brain was replete with phosphoid principles, which I then rudely isolated and determined a deficiency of the brain principle we now term kephaline in the medulla oblonga, in those dead with phthisis; a normal medulla oblongata containing twenty-eight grains of anhydrous cerebric acid as the minimum amount, while in those dead with phthisis the amount often ran down to twelve grains. Since then others have analysed those brain principles and a resumé of the state of the knowledge of these phosphoids may be of practical importance in attaining pathological conclusions. For convenience I thus tabulate it:

1st. Cerebrin obtained by Gobley ($C_{34} H_{34} O_8$).

2d. Cerebric acid (normally combined with cerebrin in the formula $C_{42} H_{79} NPO_{13}$), a tribasic anhydrous hypophosphorous acid, by Polk, 1858.

3d. Myelin, by Virchow.

4th. Myeloidic acid, convertible into neurolic acid ($C_{100} H_{90} PO_{34}$).

5th. Kephaline, the normal combination of cerebin and phosphide of nitrogen ($C_{100} H_{79} NPO_{13}$, by Polk, 1858).

6th. Cholin (of Strecke), neurine, of Liebreich, a basic substance ($C_{10} H_{15} NO_4$).

7th. Lecithine ($C_{84} H_{84} NPO_{18}$), a compound of glycero-phosphoric acid and neurine, by Gobley.

8th. Protagon, a combination of kephaline, lecithine and glycero-phosphoric acid, by Liebreich, 1865.

It thus appears that protagon is the embodiment of the phosphoid principles of the brain, and as the representative I will speak of the brain principles as protagon. Kephaline however, contains the greater portion of the cerebric acid with phosphide of nitrogen, and consequently is by far the most important. The German histologists have confirmed my conclusions, that there is a direct relation between the amount of cerebric acid and the cerebrates (for cerbric acid is principally in combination with sodium, calcium and magnesium), and the normal vigor of the nerve masses, consequently whatever depreciates the amount of the cerebrates, will produce a corresponding deterioration of the functions in which the deficiency exists. The medulla oblongata, presiding over the pneumogastric—and the pneumogastric is so intimately blended with the great sympatheticus that modification of nerve influence, by a deficiency of the phosphoids, may produce those lesions in the digestive function which may eventuate in phthisis. Extended observations also sustain this view—that whatever tends to exhaust the nerve and brain power also predisposes to phthisis. Long continued and depressing emotions, unassuaged grief, intense intellectual pursuits, all tend to excite tubercular disease, and consumption of the phosphoids are inseparable from these conditions.

Chemical analysis of the semen has proved the presence of a large per cent. of the cerebrates. Whatever then induces an excessive drain of the semen, must induce a corresponding loss in the cerebrates, and manifest the consequences of this loss. The proposition is too well recognized to find an opponent—that excessive sexual indulgence, or masturbation are very productive of insanity, and the records of all insane hospitsals, show that all, or nearly all who are thus made insane, die of phthisis, while insanity, even with the loss of liberty and exercise, enjoys an especial immunity from phthisis. The uniformity of this occurrence it seems to me, is an irrefutable argument in favor of the connection between loss of protagon and tubercular disease. In fact, all the evidence brought to bear, seems to render the theory a fact. But all histological research and the results collated on every side, grouped together, exhalt the relation the phosphoids hold to the body, mind and soul. It matters not whether we descend to the simplest organic phenomena, comtemplate the grand evolution of thought, or raise our conception to the infinite and penetrate the mysteries of eternal life, we cannot escape the ubiquitous consequences of the phosphoid. The protoplasm is regarded as the most elementary constituent of animal organization, the general basis of all tissues, and protoplasm is inseparable from the influence of sulphur. Taking the granule as the morphological unit, we find the sulphur trace associated with its organization and internally blended with its life and development. Yet, tracing the morphological unit a step further, watching with the microscope the wonderful revelations it unfolds to us of the hitherto unexplored mysteries of life, we find even the granule depending upon cerebric acid, in association with ammonium, for its development into cell organism and animated fibre. Place the blood plasm, under the microscope and add a trace of the cerebrate of ammonium, and it may be noticed the granules hasten to arrange themselves in corpuscles; less striking dispositions can also be obtained by the cerebrates of potassium and sodium. Here we also get another glimpse into the pathology of tubercle. Tubercles are either granular or corpuscular—are either a blighted granule or an aggregation of granules—a white blood corpuscle.

If then, as Lehman has asserted, and all evidence seems to corroborate, the development of structure in the amorphous protoplasm cannot proceed with the vivifying influence of a phosphoid; modification in the quantity and quality of the phosphoid may so impair the morphological process of the granule or the corpuscle as to blight it, destroy its vitality, and favor its exudation into the adenoid tissue of the lungs and other structures of the human organism, to there abide and constitute a tubercle. Accepting then, cerebric and phosphoric acids in their alkaline associations as the emanators of the morphological phenomena evinced in the growth and development of animal life, the position is unassailable that they wield a predominating power over all nutritive, brain and nerve processes, and display their efficiency in this normality, or abnormality. If they be the organizers and tissue generators of the animal and vegetable kingdom, can we exempt them from the consequences of lesions resulting from nutritive deficiency? What is tubercular disease but an expression of these very conditions; what is tubercle but a blighted protoplasm, receiving its mortal wound in the defective vivifying power of the protagon, and lodged in adenoid tissue to caseate and become the focus of ulceration? Reiterating then, that the sulphur modified protoplasm constitutes the germinal constituent of both vegetable and animal organisms, its normality is inseparable from its correlative kephaline—the vivifying principle of protagon—and is modified by its modifications. Though the granule be the morphological unit from which all tissues are derived, Bennett has demonstrated that it is through the influence of cerebric acid that their arrangement into cells are determined, that it is cerebric acid which coördinates its organization into tissues, and decides all its various morphological results. Then, if all these be the high purposes of cerebric acid, and if the cerebric acid be deficient and inadequate to the result, the unvivified granule must become the granule of Bayle and the leucocyte the corpuscular tubercle.

Reasoning from this standpoint, with these facts, it seems to me, tuberculosis finds a prime factor in deficiency of this compound of phosphorus. In addition, the following quotation from Baron Liebig, shows the important relation of the compounds of phosphorus in the function of respiration. He says: "That there is no known salt, the chemical character of which approaches more clearly the serum of the blood than the phosphate of sodium.

There is none more fitted for the absorption and entire removal of carbonic acid from the organism. When carbonic acid is taken up by the blood, there is established between the phosphoric and carbonic acids an equilibrium similar to that existing in the juice of the flesh between the lactic and the phosphoric acids. In the same way as these divide between them the potassium of the juice, so do the carbonic acid and the phosphoric acid divide between them the sodium of the blood.

If we assume that the carbonic acid seizes a portion of the sodium, we may imagine that the phosphoric acid previously combined with this portion of the base is expelled from the place it originally occupied and thus set free, but it does not on that account separate from the compound. We can say carbonic acid is changed into carbonate of sodium only, when the free phosphoric acid has been removed and employed in another quarter, but in point of fact this phosphoric acid always displays it presence, and retains unimpaired its power of combining with the sodium. The slightest cause coming to the aid of its affinity, so as to give it the preponderence, suffices to displace the carbonic acid and reproduce the original compound. Agitation with air, the spontaneous evaporation of the water in which the compound is dissolved, diminution of the atmospheric pressure, all these causes, which have no effect on neutral carbonate of sodium, produce decomposition, and cause the separation of the carbonic acid taken up by the sodium phosphate in the blood. In this manner the carbonic acid is kept at a constant value. If more carbonic acid enters the blood from the body, more phosphoric acid is set free in proportion, and thereby a more complete separation of the carbonic acid in the lungs is secured. If more sodium is taken up, then a part of the carbonic acid which would otherwise have escaped by the lungs, is eliminated from the system by the kidneys, in the form of the carbonate of sodium."

At first thought the above may seem to be without practical reference, but when we consider the facts here presented, with several known facts regarding the pathology of tuberculosis, the relation between them becomes evident. Prof. Aitken, explaining the causes and processes of tyrosis, specifies a constitutional predisposition, the evidence of which is based on the fact that in some animals all ordinary pus undergoes this change, as in rabbits and sheep. This occurs by the abstraction of the watery part of the pus, or of the new material, by absorption; a theory also supported by the occurrence of the change in those animals which rarely drink water, and take little or no food, their urine being highly concentrated and their excrement hard and dry. Local anomaly of structure or function, such as may be expressed in the greatest intensity in the lungs; as for example, a relatively small amount of blood in the pulmonary tissues. Hence certain diseases which keep the lungs over-supplied with blood have been observed to be antagonistic to phthisis, by overflow of blood, especially from the pulmonary veins, as diseases of the heart and great vessels. On the other hand, phthisis has been noticed as concurrent with stenosis of the pulmonary artery.

"The rarity of pulmonary phthisis in mountainous countries and in persons whose chests have been thoroughly expanded, point in the same direction; as well as the immunity of those who suffer from chronic bronchitis; and the opposite effect of pleuritic compression as tending to induce phthisis."—*Science and practice of Medicine, vol. ii, p.* 545—546.

We are thus brought to the consideration of the very condition which is most favorable for the separation of the carbonic acid from the sodium, and its involution in the system. When we also consider the consequences of this involution of carbonic acid and its influence in depressing the nervous power and deranging the entire processes of nutrition, we obtain an insight into the morbid processes of tuberculosis.

If abstraction of water gives the phosphoric acid power to expel the carbonic from its association with the sodium, and the dryness of the pulmonary tissues is one of the essential conditions in tyrosis, and one of the concurring ones in tubercular deposit, phosphoric acid in the formula with sodium assumes the position of an exciting and determining cause. In this case, however, we do not reach the initial lesion. The dryness of the pulmonary tissue deranges the relation of the acids with the sodium, but this very dryness may result from imperfect expansion and want of exercise of the pulmonary parenchyma. Depressed nerve power will induce this very condition; in fact, except in stenosis of the pulmonary artery, it sustains the position of an essentiality. As Liebig has said, without phosphorus there is no thought, we can well add, without it also there can be no nerve force.—The essential constituent of nerve structure, the very pabulum of nerve life, and the element employed in all nerve functions. If it be deficient in quantity, or improper in quality, it will be quite inefficient in performing its innumerable duties.

What relation does impaired nerve power sustain to the development of tubercule? It may be expressed in five aphorisms:—

First: It reduces the capacity of the chest and prevents a requisite supply of oxygen from entering the lungs, induces the dryness referred to, and as I have already observed, breaks up the connection between phosphoric acid and the carbonate of sodium, and thus liberates the previously combined carbonic acid and favors its introduction into the blood, and thus in time becomes an efficient ally of the already existing morbid condition; depresses in a more decided degree the nerve centers, and favors in this manner the development of every lesion that obtains in tubercular disintegration.

Second: It prevents the formation of cells sufficiently vitalized for cell development after the elimination of the blood serum from the blood-vessels; consequently we find the exudation of the liquor sanguinis so low in organizable elements, as to constitute a sick and dying element—cacoplastic or aplastic in its nature, ready to caseate and become the focus of disorganization.

Third: Imperfect cell formation is the consequence of malassimilation; the chyme and chyle are improperly elaborated. The proper ratio between their constituents is deranged; the starchy elements are not transferred properly into glucose, and the fatty and oily elements not properly emulsified; butyric acid is generated largely *instead*, and the albuminous elements which are relatively in excess, are too firmly held in solution for assimilation by the butyric acid thus generated.

Fourth: The impaired vital capacity prevents the formation of healthy secretion in the lining membrane of the lungs; the secretion partaking of the general vital deterioration, the lining membrane of the cells is imperfectly formed. This membrane, it will be remembered, consists of a layer of cells, and like other secreting membranes, is being continually thrown off and becoming mingled with the tubercular matter as it forms in the lungs, and thus furnishlng food for the tyromatus processes.

Another fact in this connection somewhat suggestive, is, that the ganglionic nervous system especially presides over and directs the functions of all the secreting membranes, Fifth: Whatever impairs the nervous functions of the ganglionic nervous system will derange the pulmonary capillaries—consequently we have relaxation, and a large amount of exudation into the air cells results. In this exudation is an abundance of leucocytes, or as Williams prefers to call them, sarcophytes, which here cease their amœboid motion, die, shrivel, and become corpuscular tubercular cellular cells, which I will prove in considering the morbid anatomy of tubercular lesions.

In these five aphorisms are embodied many facts which relate both to the organismal and function sustaining properties of phosphorus, and the consequences of its deficiency on the one hand and the origin and development of tuberculosis on the other. We here see cause and effect very intimately linked together. We find that phosphorus as a protagon, the very food sustainer, prompter and essentiality of nerve structure and nerve function. Again, we find that vital force is displayed through the nervous system, that it is the great medium of communication between the etherial, mysterious essence mind, and the organic functions; that both the electric battery and the wire must be in perfect condition, or the result is abnormal; the vital knot—the throne of life— must be efficient, and also the nerves through which it communicates must be ready and healthy, or the resulting communication will be derangement of function. Notwithstanding the apparent independence displayed by the ganglionic nervous system in its supervision and direction of secretrion, digestion, absorption, assimilation, appropriation, sanguification—in fact the entire processes of nutrition, we find nevertheless, that all these are modified by mental impressions. There is no better established fact than that a shock upon the mind vibrates throughout the entire processes of life. Grief will arrest the series of the entire nutritive processes and induce severe diarrhœa, and even inflammation, of the chylopoëtic viscera. Mind and body are indeed closely inter-related. They are mutually dependent upon each other. Abnormality of brain will induce abnormality of body. The nerves being the channel by which the brain sends forth its power; and also through this medium by reflex action that the brain is informed of physical conditions. Without phosphorus, says Liebig, there is no thought, and if there be no thought there can be no brain or nerve power; consequently whatever modifies the formula of this element must also modify intellectuality, man's emotional nature—his passions, his desires, the acts of voluntary motion, and his organic functions. The protogon, the combination of hypophosphorous acid with glycerine and olein, we have numerous reasons for believing, are the types of phosphorus which act as the nutrient and function sustaining property of the brain and nervous system. A modification in either its chemical relations or its quantity must necessarily derange the functions over which the nervous system especially presides. Its deficiency in the anterior and superior lobes of the cerebrum would modify intellectuality, while a similar condition in the medulla oblongata, cerebellum and inferior portion of the cerebrum, would manifest the effect in the organic functions. Now, if we could modify all these conditions, if we could supply each organ and tissue with the very formula it requires of phosphorus, we no doubt would have attained a great advance in therapeutics. But so prone is every type of its hydrogens for oxygen that it is difficult to predict what a phosphorous combination will become when taken into the system. Monobasic acids may prove tonic, but they are destitute of organismal power. Monobasic hypophosphites of lime and sodium are only valuable tonics. Beyond this limit they possess no power. They cannot unite with nitrogenous elements to form the compounds of the system. Phosphorus, however, very slightly oxydized, in the presence of oil, glycerine and extract of beef, will form first a nascent tribasic hypophosphorous acid, which will unite with three units of a base, forming chemically and physically the protagon we find in the brain. I believe the very first lesion in phthisis, apart from deficient vital organization, has its origin in a modification of this phosphorus compound.—That from this modification occurs the circle of morbid processes which form the destructive disease, tuberculosis. From it eminates the depreciation of vital force which modifies the functions of nutrition and constitute the chemical conditions which eventuate in the deposit of tubercle in the tissues of the lungs and other organs. But I do believe that the phosphorous modifications are not limited to impaired deranged nerve force, whether manifested through either the cerebro spinal nerve, or the ganglionic system. I have already alluded to the relation of the bibasic phosphoric acid in its combination with the sodium of the blood with carbonic acid, and we have seen how, under certain circumstances the mastery is given to the phosphoric, and the carbonic is imbibed into the system, and we also know that the very condition most favorable to the result obtains in phthisis.

We know that phosphate of lime constitutes an element in the tubercular deposit, and I think there are potent reasons for believing that the influence of phosphorus and its hydrogens in some manner modify the different complications which spring up in its course. With our present knowledge of the therapeutical and pathological relations of phosphorus we are unable to trace them through all the complications of disease, but I have no doubt that the more we investigate the relations, the more we will find exalted the importance of phosphorus and its hydrogens.

The part sustained in the morbid phenomena is as yet imperfectly understood; there are, however, some well established facts throwing considerable light on both its physiology and pathology. Bernard's experiment in pricking different portions of the medulla oblongata, producing at will in both herbivorous and carniverous animals either saccharine or, albuminous urine, indicates the extent to which organs and functions are modified by nervous stages. We already know that injury to the pneumogastric nerve will induce congestion and inflammation of the lungs, and with this knowledge we can easily understand why modifications of the phosphorus element in the nervous system may alter the functions, not only of the nervous system, but destroy the equilibrium of vital actions and throw the entire machinery of the organism into disorder.

The fact that the principal nerves of the stomach, heart, and lungs are the same nerves, gives us plainly the reason why a disturbance of one of these organs is accompanied by more or less derangement of the other. The nerves of the lungs, the pneumogastric and sympatheticus, form the plexus pulmonalis, or the nerve centers of the lungs and heart.

So intimately blended are the nerve centers which preside over the functions of digestion and respiration, that a derangement in one must almost necessarily produce a derangement in the other. If an injury to the pneumogastric will so modify the secretions as to produce both saccharine and albuminous urine, how very easy it is to infer that a morbid manifestation of the nerve function of this and the sympatheticus may also develop all the lesions which spring up and follow in the trail of phthisis. The medulla oblongata I have already alluded to as the very fountain head of the nerve power which presides over the functions of the pneumogastric, and also exerts a modifying influence upon the sympatheticus.

But so intimately related are all the organs and functions of the body to each other, that not a single one can be disordered without deranging the delicate and complicated machinery of the organism, and modifying in a greater or less degree the operations of the others The nervous system derives its pabulum from the blood, and the blood is also modified by the impressions conveyed to it by the nervous system, and the brain is the source of nerve power and the distinguishing feature of animal life.

The blood is the medium by which the materials of supply are introduced and those of decay are removed from the system, and consequently it is natural when we come to investigate the cause of this disease, and the channel through which it operates, to look to the blood. Bennett however, very truly says, " we cannot halt our investigations at the blood." We must look beyond ; we must penetrate in our researches to the pabulum which ministers to the nutrition of the body through the blood. Healthy tissue can only be elaborated by a well directed and vigorous digestive and assimilative function, and this function can only be performed by the excito-secretory nerve system, which presides over, and furnishes the necessary stimuli to perform these functions, and the excito-secretory nerve system also depends upon a vital principle—the essence of life—unanalyzed and unanalizable ;—an emination from the hand of the Deity ; the governing principle of animated nature. But this vital principle must have a well organized and healthy nerve-structure through which to act ; and to be healthy, it must possess a full proportion of all its constituents in their normal formula.

We have already considered the relation of phosphorus to nerve structure, and I have abundant proof that the value of phosphorus in neuralgia is in supplying the hungry nerve with food, and the proof that phthisis is an emination of deficient nerve power.

This brings us to the first link in the chain of causation of tuberculosis—deficiency of this element in the system. And in consequence of this deficiency, there is a depreciation of nerve vigor and consequently inefficiency and malperformance of duty by the thoracic and abdominal plexus of the excito-secretory nerve system. The type of phosphorus impaired in its quantity, and perhaps also in its quality, is the anhydrous hypophosphorous acid of the tribasic variety, in combination with olein and glycerine.

I have now traced the tubercular formation from its primitive cause to the lesions that cause induce, and find that the chain is thus linked together: Imperfect brain power, impaired digestion, generation of butyric acid, neutralizing the pancreatic juice, which is normally alkaline, and thereby deranging the relation between the oleaginous and albuminous elements of the food. We are also in possession of a suggestive fact: Butyric acid masks all tests for phosphorus, and it seems to me to be also concerned in the modifications of the quantity and quality of the hydrogens of phosphorus; that owing to the lesions thus induced, we find an excess of albumen in the blood, deficiency of the normal oleaginous elements, a predisposition in mucous membranes to congestion—owing to the deranged condition of the organic nervous system—dilitation of the capillaries, and exudation into the pulmonary parenchyma of an albuminoid fluid containing tubercular corpuscles. These are of a very low endowment of vitality from their earliest birth; they are but born to die, and with an innate tendency to decay. The first step in the downward course, is to induce a condition of lung, almost if not identical with, gray hepatization. By further changes this breaks down into cheezy masses; excites irritation, inflammation, ulceration, disorganization and usually death. That in the tyromatous process, a virus is created capable of perpetuating the blood lesion independent of the first lesion in the processes of nutrition. This idea is supported by all the facts developed in innoculation. This is not difficult to comprehend when the origin, nature and history of the tubercular corpuscle is considered. If the tubercular corpuscle be, as I think it is, a white blood corpuscle, bioplast, leucocyte—or as Williams prefers to call it—a sarcophyte, either of feeble vital endowment from its birth, or becomes unhealthy through morbid impressions of the blood, that it escapes with the exudation, dies, shrinks, and becomes a miliary tubercle, or absorbs portions of the albuminoid fluid, caseates, and becomes a gray tubercle, very much of the uncertainty respecting tubercular processes at once vanishes.

The objection to this conclusion is that there is a variance of size between the sarcophyte and the tubercular corpuscle, but this objection is founded in error. There are several kinds of sarcophytes; some round and small, not attaining the size of a red blood corpuscle. These are composed of thin layers of cell substance investing one or more nuclei, and may become either spheroidal, or flattened by compression. Others are also found associated with these, attaining the usual size and form, and also have one or more nuclei. Besides these we also find amœboid (or emigrating) cells, both finely and coarsely granular, as also various intermediate forms and sizes between these. In freshly drawn blood these last appear as more or less rounded, or of irregular shapes. And another fact is also here presented: At the temperature of 94—104°F., these sarcophytes display quite active motion, resembling the motions of the amœba, from which peculiarity they are called amœboid bodies. However, when the temperature is elevated to 110° or 120°F., their motions cease, and the cells shrink and harden. The sarcophytes, as long as they preserve the power of motion, also possess the power of imbibing particles into their substance and of digesting the liquids in which they float. This function, long suspected, has been verified by experiments with carmine, analine, and milk globules. The latter were digested while particles of the former substances seem embeded in the sarcophytes. If the sarcophyte be as Beale considers them, masses of structureless germinal matter—the kind of matter which is concerned in the production of everything that lives, and is always derived from matter which had existed before it—the *granular matter detected in them, and supposed to enter into the formation of their substances, being, in fact, only the debris resulting from change, after death*, the inference coroborates my view of miliary tubercle. However, many of these sarcophytes exhibit well defined nuclei in freshly drawn blood, and these nuclei can readily be detected in active amœboid corpuscles, so that it seems that these masses are almost constant elements in the structure of colorless corpuscles, and no doubt also constitute the nuclei observed both in the pus and tubercular corpuscle.

It seems to me that the evidences in favor of a tubercle being a blighted and dead sarcophyte, are very conclusive. Derangement of the organic nervous system is no doubt immediately concerned in the pulmonary exudation with which these sarcophytes escape from the pulmonary vessels into the pulmonary tissue to die, shrink and granulate, or imbibe albuminous elements and form the gray tubercle, fill up the alveoli and adenoid tissue, and either undergo fatty degeneration and absorption or calciferation, or soften, become cheesy, and form a focus of destructive ulceration. We also find a similar condition of abnormality ensue when the sputa, blood or tubercle is introduced into a lymphatic gland of a previously healthy animal, and very similar deposits also follow innoculation, by pus from foul ulcers, decayed blood and other septic matter, although I believe from my personal observation that the latter do not induce the same abnormality as the former, although the resemblance between them is indeed very finely shaded; the same however, may be said of septicæmia and tuberculosis. However, it should not be forgotten that septic innoculations will induce in man either septicæmia or embolism, and neither gray or miliary tubercle. In the following description of the action of the poison of the cobra, I think we see some pathological facts which throw some light upon the action of a virus acting upon the blood, and also obtain some intelligent views of the processes attending the development of tubercle:

"When a person is mortally bitten by a cobra de capella, molecules of living germinal matter are thrown into the blood, and speedily grow into cells and as speedily multiply, so that in a few hours millions upon millions are produced at the expense, as far as I can at present see, of the oxygen absorbed into the blood during inspiration, hence the gradual decrease and ultimate extinction of combustion, and chemical change in every other part of the body, followed by coldness, sleepiness, insensibility, slow breathing and death. The cells which render the blood unfit in so short a time to support life are circular, with a diameter of $\frac{1}{2,800}$ of an inch in breadth, which, when further magnified, is seen to contain still more minute sporules of living germinal matter. In addition to this, the application of magenta reveals minute colored spots of some points of the circumference of the cell."

This indeed, describes a very acute form of phthisis; much more rapid indeed than any included in that nosology. The very cells he here describes cannot be aught else than sarcophytes abnormally developed and rapidly consuming the oxygen, and thus inducing death. In tuberculosis we witness the same event, only in the latter it is grain by grain that the mortal frame wastes and withers away. May we not reconcile some of the German innovations, false as they mainly are in their conclusions, with these facts, and reach an explicable cause why a cheesy deposit in the lungs or other portion of the system may impress the sarcophytes brought in contact with them and induce the metamorphosis we term tubercle? I can see nothing impossible in this, nor anything at variance with the general laws governing the origin and development of phthisis, from inherited or acquired constitutional peculiarities. It does not overthrow the doctrine that phthisis, or rather the defective organization on which phthisis depends, or in which it originates, is inheritable and may be transmitted from parent to child, but only confirms what seems to me to be axiomatic: That tuberculosis may accrue from all these sources, and subsequently, it matters not what may be its factors, become subsurvient to hereditary laws, and thus different in no manner from inherited disease. We certainly obtain the only rational view of the deposits that take place in innoculation with pus, tubercular matter, decayed blood, or other sceptic material from this standpoint. With this explanation, there is nothing obscure in the fact that the morbid condition of the sarcophyte may result from the consequences of malassimilation or from septic matter in the circulating fluid, although I cannot recognize the precise identity of the two results. When, however, we take into consideration the identity in form and chemical constituents of pus and tubercle with the sarcophyte, much that is otherwise obscure in the pathology of these, becomes intelligible. We can easily reconcile the origin both of the pus and tubercle with sarcophyte, and comprehend more intelligibly the manner by which the pathological may accrue from the physiological product. We are thus enabled to trace the malady to its first developing cause, and understand how the disease may be originated independent of hereditary influences or physical conformation, and thus set at rest some idle and unprofitable theorizing upon the origin and development of tubercle. It is evident that tubercle can result from a morbid condition of the function of nutrition, whether congenital, or resulting from certain coördinating causes influencing one previously free from inherited taint.

The first observable deviation from health manifested, is dislike to fatty articles of food, accruing from inability of the digestive organs to reduce these to a condition for assimilation. This inability arises from deficiency of pancreatine poured out to emulsify the fatty elements of the food, and this deficiency of pancreatic fluid is the immediate result of impaired organic nerve function. With this derangement there also exists, as described by Bennett, "an excess of acidity in the alimentary canal, whereby the albuminous constituents of the food are rendered easily soluble, while the alkaline secretions of the saliva, and of the pancreatic juice are more than neutralized, and rendered incapable either of transforming the carbonacious constituents of vegetable food into oil, or of so preparing fatty matters introduced into the system as will render them easily assimilable. Hence an increased amount of albumen enters the blood, as shown by chemical analysis, while fat used for caloric is largely supplied by the adipose tissues of the body, causing the emaciation which characterizes the diseases. In the meanwhile the lungs become especially liable to local congestion, leading to exudation of an albuminous kind. This in turn, being deficient in the necessary proportion of fatty matter, elementary molecules are not found so as to constitute nuclei capable of further development into cells; they therefore remain abortive, and constitute tubercular corpuscles. Thus local disease is added to the constitutional disorder, and that compound affection is induced which we term phthisis pulmonalis, consisting of symptoms partly attributable to the alimentary canal and partly to the pulmonary organs."

From this view we can conclude that an oily emulsion must be formed to constitute a proper chyle to be converted into blood, and that in pulmonary and other forms of tuberculosis this process is interfered with, and that in consequence a state of constitution is induced favorable to the deposition of tubercular exudations into various tissues, but especially into the pulmonary organs. As has already been stated, the blood is vitiated, altered in character, and of a low vitality; the cell formation takes place with diminished energy, and leads to defective structural growth; the tissues are consequently delicate, the organs weak, and easily deranged. Pathological chemistry and microscopic research go a step beyond this, and afford ground for believing that in the portion of the recently formed blood, proteiniform and oleaginous principles are not only not perfectly elaborated, but also the oxygen, hydrogen, nitrogen, or carbon, and some of the primary compounds, are either in excess or deficient; that the abnormal proteiniform compounds thus produced are less organizable than those produced in health—more apt to become granular, more prone to aggregate in masses; the fatty matter is of a lower grade than healthy fat, and approximates to the nature of cholesterine, and these deviations from the healthy type, both of the blood and blastema, from which the tissue is formed, produce the various anomalies in the growth and development of the body, and give rise to products which constitute the pabulum of tubercle.

We have also several additional facts which, grouped together, aid us in appreciating still more clearly the rationalé of the morbid process by which the tubercle is deposited. First: The albuminous character of the fluid material which infiltrates the tissues of an organ previous to the process of tuberculization, by which the infiltration is in part changed by coagulation, into the deposit in which tubercles are developed. Secondly: An obvious affinity between lymph of the blood and tubercle, as demonstrated by Allison. Thirdly: The albuminosity of the blood, already referred to, and its connexion with acidity of the intestinal canal. Fourthly: There is the peculiar state of the blood, amounting in appearance to leucæmia, which immediately succeeds digestion in healthy persons, resembling the molecular and corpuscular elements of chyle, or lymph, and consisting of fats emulsified with albumen. To this substance Panum gave the name of pabulum, which is further elaborated in the blood, in the glands, and in the lungs, before it takes part in the general morphological changes connected with nutrition. Fifthly: The observations of Panum and Parkes relative to the precipitation of albumen by acids and neutral salts, in which Dr. Parkes especially shows that the albumen, as it exists in the blood serum, is usually in that condition in which it is most readily precipitated by acids and the chloride of sodium.

To my mind, with the above facts relative to the blood in phthisis, the circle of morbid action is completed:—Deficiency of the hypophosphite of olein and glycerine—the protagon in the brain, and blood, and nerve structure—and in consequence of this inefficiency, impaired and modified nerve influence, exerted through the thoracic and abdominal plexus of the excito-secretory system of nerves, deficiency of pancreatic secretion and an excessive acid condition of the intestinal canal, by which the alkaline secretions of the salivary and pancreatic glands are more than neutralized, the fatty elements in consequence are not properly emulsified; the heat creating materials are not furnished in an adequate amount to generate sufficient animal heat for the purposes of animal processes; adipose tissue is consumed in the production of animal heat, producing the emaciation which characterizes the disease. In consequence of the butyric acid in the intestinal canal and the aberration of other functions of the chylopoëtic viscera, the albuminous elements are not properly elaborated to assimilation, and in consequence of the malassimilation the more than naturally liquid albuminous elements are infiltrated into the lungs, in which event the relaxed and dilated capillaries play the part of a concurring cause. With this exudation there also escapes a corpuscular body which is the tubercle proper, and which I think I have satisfactorily demonstrated to be a blighted leucocyte, or as Williams terms it, "a sarcophyte." I am confident that butyric acid is largely concerned in these consequences. It seems to play an important part in the pathology of diseases arising from malassimilation, by holding the phosphates too firmly in solution, and thus preventing their appropriation for the purposes of nutrition.

Another well-known condition of high import also deserves attention. The large amount of phosphates in the urine, and also the formulæ of these phosphates, the soluble phosphates are rather hypophosphates, which do not abound in health. The insoluable phosphates are the products of tissue metamorphosis in very much the larger proportion, and the presence of these far exceed the normal standard. We must however, attribute the presence of the latter variety to the products of tissue disintegration, while we must look to the functions of digestion, assimilation, and appropriation, as the source from whence they come. As butyric acid is antagonistic to the assimilation of the phosphates, as well as the albuminous constituents of the blood, I regard it as the intervening impediment of the processes of nutrition. But butyric acid is the product itself of malnutrition, resulting it seems, in the very condition which induces the disordered relation between the fats and the albuminous elements of the food. This view receives support from the therapeutics of phthisis. Whatever improves the digestive function ameliorates the disease. Cod-liver oil, nitric acid, and phosphoric acid act in this same manner. In some cases nitric acid with taraxicum and tonics will stay the morbid processes, and perhaps obtain an armistice for several months. It is, however, only in the early stages such results are obtained. Nitric acid no doubt accomplishes its therapeutical results by altering the digestive secretions, and preventing the ferment in which butyric acid has its birth—the result of impaired organic nerve power—so thus we find several associations of lesions before we reach the final result—development and deposit of tubercle—and it is only by taking this inclusive view that we can comprehend the various conditions in which it originates; but after tubercle is once developed, or the leucocyte becomes of impaired vitality, a ferment seems generated in the blood capable of perpetuating the condition. We may have many proofs of this. The experiments with innoculation in which there is no necessary aberration of the function of nutrition places this fact beyond per-adventure. The tubercle is situated both inside and outside of the alveoli, but displays a strong election for adenoid tissue; in fact this election is so strongly marked, that Burden Sanderson regards tubercle to be simply an overgrowth of this tissue of impaired vitality which degenerates, undergoes tyrosis, cheesy metamorphosis, excites irritation, inflammation, and the other concomitents of tuberculosis. The view gains some support from the fact that wherever this tissue abounds, there also may tubercle be found. The supra-renal capsules, the malpighian bodies of the spleen, Peyer's glands of the ileo-cœcal sack, contain adenoid tissue in abundance, and in them also do tubercle abound.

While dissenting from the anatomical views of Sanderson as to the nature, I cannot but acquiesce very nearly as to the seat of the deposit. As already stated, I regard tubercle as a blighted sarcophyte, but may not this sarcophyte be poisoned and blighted by a virus generated in caseous degeneration of an albuminoid exudation? I believe it often is. The experiments of myself, and those subsequently by Williams, Fox, Waldberg, and others, in innoculation, render it probable that such is the manner in many cases. In fact Buhl advocates this very dectrine. But tubercle is also found prior to cheesy metamorphosis. Gray tubercles are composed of cells, but these undergo metamorphosis with the tubercle itself in its change from the gray to the yellow, so that in the latter they are shrunken, blighted, shapeless; degenerating with preponderence of granular matter with oily particles. It always seemed to me that the oil cells result from the lesion of function in the pancreas and duodenum, and is very significant of the morbid processes by which malassimilation in a peculiar diathesis may develop tubercle.

TREATMENT.

The treatment of phthisis may be very properly divided into prophylactic, hygienic, and therapeutical:

The prophylactic, sufficiently early begun and intelligently and perseveringly followed, will obviate the constitutional peculiarities upon which the tubercular diathesis seems to originate, or in very many cases seems to depend, or be very intimately associated in its origin and development. The difficulties, however, encountered in recognizing in all cases this diathesis, in consequence of many errors heretofore entertained as to the physical conformation and peculiarities, as well as to its origin and the dependent circumstances on which the tubercular germ is awakened into activity and developed, and in enforcing, even when these are recognized, proper regulations of food, habits, exercise, emotions, passions and desires, have in a large measure deterred the physician from asserting his prerogative and performing this important duty, *i. e.:* the nipping in the very bud of this germ, which, aided by infractions of physical laws, may light up a degree of disintegration which neither hygienic nor medicinal measures are adequate to subdue.

The constitutional predisposition being recognized, we must inquire minutely into the history of the person and his ancestors through several generations, as the disease often skips one or two generations and yet appears in subsequent ones, whether the predisposition to tubercle is inherited or acquired.

In cases where the diathesis has been acquired by sufficient of the causes heretofore stated, the removal of these causes is of the first importance; with these still in operation no treatment can avail much, and the disease will progress to a fatal termination. Unfortunately however, poverty, which is very often an obstacle beyond the power of the physician to remedy, interposes and thwarts every plan and purpose he may desire. Unwholesome and scanty allowance of food; clothing inadequate to protect the body from the vicissitudes of season and climate; damp, imperfectly ventilated apartments; crowded bed-rooms, where the air, not being renewed by proper means, and contaminated by the exhalation from the lungs and skin of others, all conspire not only to realize, but to exceed the effect of any remedial agents while these are in force. Unwholesome food, by deranging the digestive organs and preventing the elaboration of blood, produces debility, and thus depresses the vital forces to a degree that disqualifies them for repelling the inroads of morbific influences; when in addition to the bad quality of the food, it is deficient in quantity, the consequences are in a higher degree marked. The blood becomes deficient in red corpuscles; the white blood discs relatively more abundant; the capillary circulation feeble, and any pre-existing diathesis more quickly manifested. Proper food is then an object of the first importance; one upon which hinges in an important degree, our success or failure in the management of every form of phthisis whether it be the pneumonic or tubercular form. So various, however, the peculiarities of different persons, that it is difficult to lay down arbitrary rules that will apply without modification to each and every case. The food, however, should be nutricious, and as rich in oily and carbonacious elements as possible; and as freely eaten as the digestive organs will permit without inconvenience. Let it however, be recollected here, as in every other item apertaining to the treatment of this disease, preserve first, last, and above every other consideration, the integrity of the digestive functions. Oysters are a favorite article of diet with me in this disease; nothing else in my hands seeming to sustain the flesh and strength in an equal degree, or so generally agree with delicate stomachs. Whether this claim be sustained or not, I can give personal evidence of the facility with which they are borne by stomachs that are nauseated by everything else, and of the rapid convalescence under their use as a diet. They are very rich in phosphorus, and if my theory be correct, may they not be the best medium by which phosphorus can be assimilated into the system to restore the organic nervous energy, by which the function of organic nervous life may be vigorously performed, and the digestive aberration—imperfect emulsion of fats, excess of the albuminous over the fatty elements, and malassimilation of the alkaline phosphates modified—if not remedied?

Milk is another article of food in which I have much confidence. To secure its best effect, it should be given as Niemeyer directs, fresh from the cow; so as to secure the entire constituents of the milk, the loss of the cream by skimming seeming to deprive it in a great measure of its dietetic merit. A combination of oysters, crackers and milk, may seem like an unpoetical breakfast, yet I can cite one instance at least in which this diet and proper attention to hygienic measures without any other medicinal agents, seemed to arrest a case in which a considerable vomica existed in the right lung. Six months have now elapsed, and the health remains good, although I am not certain that the result is permanent.

Trousseau, the distinguished author of *Clinical Medicine*, (a par excellent work, without which no library is complete), places high estimate upon extract of malt. I have used it in many cases, and can concur with the learned Professor in its valuable tonic properties. I have always used Hoff's, except in a few cases where I have prepared a stronger preparation myself. Brown stout, however, seems also to do much good, and I presume it is not very inferior to the malt extract, in about twice the amount to the dose of the malt extract. I usually give a wine-glassful thrice a day, administered an hour before meals; it seems to prepare the stomach to receive kindly the cod-liver oil emulsion which I usually administer half an hour afterwards. Meats rich in osmazone should be preferred. Roast beef, roasted or broiled birds. Eggs are valuable, and should not be overlooked in the diet table of the consumptive. They are rich in phosphorus, albumen, and nitrogenous elements—elements demanded, and of the highest value in a disease which day by day and grain by grain wears away the earthy tenement of the soul.

While rich diet is important, and proves one of our most efficient remedies in counteracting the diathesis when already developed, a deficient and innutritious diet is very potent in producing an impairment in the vital forces, which light up, if it does not generate *de novo*, the scrofulous diathesis. This is well marked among children in our alms houses, children's homes, and other charitable institutions. I have yet to see a single child that has been an inmate of one of these charities for two years, that does not evince this. Girard College is not included among these; in that institution the strictest attention is paid to every hygienic law, and the consequence is, a vigorous class of youths go forth into society, to become useful members, and very often some of its brightest ornaments.

The cause above mentioned, I am sorry to say, is not confined merely to public charities. Richly endowed public institutions or schools, may be so managed, and have been so managed as to become hot-beds for the generation of scrofula or tuberculous diseases. The same remark as often applies to private as public schools; not merely as respects food and clothing, but also as regards ventilation, light, sunshine, and purity of air. The constitutions of the industrious poor are sacrificed on the altar of gain, and too often it is found that municipal governments lend their aid to the immolation, that they may receive the unrighteous support of the priest of mammon in perpetuating their power, their patronage and the aggrandizement of their satellites. The physical and moral amelioration which salutary measures would impart to those most in want of them cannot be afforded out of the luxuries and patronage which these governments too often bestow on their supporters and themselves. The cloak of humanity too often covers the most heartless selfishness, and under its guise the most cruel extortions are made. The worst corruption invests the most sacred places, and

> "Man's inhumanity to man,
> Makes countless thousands mourn."

Copland says: "Among the lowest classes, especially in large and manufacturing towns, the frequent recourse to anodynes and carminatives containing narcotics, sedatives, etc., in order to procure sleep or quiet for infants and young children, and to allay their wants, cravings of appetite and irritations of temper, is of itself no mean cause of their weakness of constitution; of imperfect development of both body and mind; of scrofulous and tuberculous formations, and of various other diseases, as they advance to puberty and manhood."—*Dictionary of Practical Medicine: Art. Scrofula.*

I could not quote from a higher authority, and have no doubt that his views are entirely correct. If it be so in Great Britain, where the use of these abominations are confined principally to the poorer classes, what must the consequences be in this country, where the evil pervades every class and condition of life. By far the most elegant method of thus poisoning infants yet invented, is the famous so-called "Winslow's Soothing Syrup." Various analyses have proven beyond question that each ounce contains the large amount of one grain of morphia. When we consider the large doses in which it is given, it is surprisingly strange that the numerous deaths from its use are seldom brought to light and that the grave holds sacredly so many of its secrets. It is computed by a reliable authority that two millions of bottles are annually consumed in the United States. If this statement be accurate, the mischief inflicted by this nostrum must indeed be very great. It is no doubt a potent agent in inducing the injuries described by Dr. Copland, and will tell most unequivocally upon the physical constitutions of the succeeding generations of the United States. I hope outside of our country such health-destroying agents are much less frequently used.

The crowding of young persons together in ill-ventilated schools, shops, and especially sleeping apartments are evils well recognized, understood and deprecated by the profession, and yet this fruitful source of feeble constitutions, scrofula and consumption is unheeded, and the evil goes on, annually contributing a potent influence in swelling the list of victims of these and many other diseases. Until society recognizes the importance of acting upon this subject—until these consequenses are proclaimed and re-proclaimed in every home, in every city, in every town, in every village and hamlet, until society is awakened to this evil, we can only deplore it, without the ability to accomplish anything. Even the masses of the profession, however, I believe do not entertain sufficiently enlarged views on the consequences of imperfect ventilation and breathing over again air that has not only been deprived of its life-giving properties, but is also poisoned by exhalation; but to review this here would be reiterating only what has already been better said by Parkes in his able treatise on hygiene. Another evil also to be avoided is the overtasking the brains of young persons in schools, and confining them so many hours without the necessary relaxation and amusement so necessary to their well-being and proper development. No doubt the impaired vitality which has paved the way to so many cases of phthisis, has had its origin in the confinement and overtaxing the brain in youth.

Sexual excesses too early begun and often unnaturally followed, is another prolific source of deterioration of our youths and young men. The prostrating and ruinous influence of self-abuse, it is a recognized fact, is far more rapid and ruinous in its effects than natural sexual indulgence, even if committed to the same extent. In preventing phthisis this is one of the most potent evils with which the hygienist, the physician and the moralist has to deal. Overcrowding bed-chambers is one of the means of propagation, and to remove this pandora box of numerous evils, demands well-directed attention: Separate rooms, free ventilation, moral influences, plenty of good, wholesome food containing sufficient oleaginous elements, out-door exercise, and proper physical training, are the proper means for obviating this, as other prominent excitants of tuberculosis.

HYGIENIC TREATMENT.

I have cursorily passed over the predisposing causes to the development of tubercle, and referred to some that more immediately concern the parent and teacher than the physician. I now come to the management of the incipient and developed disease—the field of action into which the physician first enters. The sense of weariness, the loss of strength and flesh, and the slight, hacking cough, suggests to the patient that he is not quite well, although he attributes but little importance to his ill health. He casually drops into his phyician's office and " begs pardon for annoying him with so slight an indisposition, and thinks a dose of medicine is only required." The physician examines the chest; the vesicular breathing in the upper lobe of one of his lungs is interfered with, and percussion announces that the resonance of the same portion is somewhat modified—is dull, the cough is dry, consequently it is not bronchial; the throat and uvula are normal, so we cannot attribute it to that source; the liver manifests no enlargement, so we must excuse the liver and realize that the case we have to deal with is phthisis; be it pneumonic or tubercular, and the opportunity is now presented, if ever, of adopting such measures as will effectually arrest further tubercular deposit, or pneumonic disintegration. As I have stated, impaired organic nerve function, a peculiar form of dyspepsia, acidity of the intestinal canal, deficiency of pancreatic fluid and excess of albuminous elements, with improperly emulsified oleaginous elements, with want of action of the upper part of the thorax, constitute the principal features of the disease. To accomplish a cure, sedentary habits must be abandoned; the cares and duties of the counting room and office must be laid aside; depressing emotions be dispelled, and regular and moderate exercise in the open air be taken daily. Especial care must be used to force the air into the upper lobes, and he must refrain as much as possible from abdominal breathing. The natural tendency of impaired strength is to breath with the diaphragm, and avoid thoracic breathing. As stated already, the deposit is almost always first in the upper lobes, and may not this quiescence of the thorax have something to do in making it the point of the tubercular deposit? If so, this becomes an important item of treatment. Stagnation may ensue from this quiescence, and the infiltration so often observed may take place more rapidly in consequence; and other changes found in the tubercular lung, it seems to me, may occcur from the same source.

A rich, nutritious diet, composed of eggs, oysters, fish, beef, butter, and other articles rich in nitrogenous and phosphorus elements, should be as freely eaten as a normal condition of the digestive function will sustain. Every habit and mode of life should be systematized: The hour of retiring, rising, eating and exercising, should be fixed, and closely followed. The bowels should be kept regular; one evacuation daily should be secured. It is always best to obtain it without drugs, if possible. Oat meal in gruel, or other modes of cooking, bran bread, bran soup, (as given in the prophylatic diet) may be given as circumstances or caprice may determine. Dates, figs, and roast apples may sometimes be unobjectionable, but as a rule they are not desirable, owing to their tendency to ferment and augment an already acid conditon of the duodenum. The same may also be said of manna and some vegetables, which would be excellent under different circumstances. Drastic and debilitating cathartics must also be avoided. Rheubarb and aloes, with leptandrin and soap, will form an excellent combination. They may be proportioned thus:

℞.	Pulv. rhei,	gr. xx.
	Pulv. aloes,	gr. x.
	Leptandrin,	gr. x.
	Saponis,	gr. v.

Divide in pill No. xx. M.

Sig.—One or two pills every night or every other night.

In this manner a natural evacuation may be secured in the morning. A tonic medicine is indicated; I esteem the following:

℞.	Tinc. cinchona comp.,	℥iv ss.
	Spts. ammonii, arom.,	℥ss.
	Curacao cordial,	℥iij.

Misc. et sig.

Take a tablespoonful thrice daily before meals.

The indications fulfilled by this combination are to neutralize the butyric acid in the small intestines and to invigorate the gastric digestion. It constitutes an excellent prelude to the administration of cod-liver oil and the kephaline, which is, chemically, hypophosphorous acid of the tribasic variety, in combination with albumen, oleine and glycerine.

When we survey the morbid conditions attendant upon tuberculosis—the deranged relations between the fats and albuminoid elements of the chyle, the digestibility of the cod-liver oil and its assimilation, we naturally think of it as the most desirable of oleaginous substances to supply the amount required in the development of normal chyle. No other oil is so well adapted to this metamorphosis. But the value of cod-liver oil does not end with the part it plays in supplying a ready emulsible form of oleine, or the immediate influence it exerts in molecular evolution. It acts a direct part in absorbing and neutralizing the butyric acid. We have already referred to Dobell's hypothesis—claiming "pancreatic deficiency to be the first great cause of tuberculosis," as also that of Bennett, the excessive acid condition of the small intestines to be the cause of pancreatic deficiency and the especial morbid phenomenon from which other morbid conditions emanate, by more than neutralizing the normally alkaline condition of the pancreatine and thus interfering with the emulsion of the fatty elements of the food in the small intestines, the molecular development of the chyle, and the excessive albuminous condition of the blood, which induces an irritability of constitution and predisposition to exudation from the capillaries into the adenoid tissue inducing that hyperplastic condition of the glandules which coustitutes the tumor tubercle. But these, as I have already stated, are consequences of the original cause—deficiency of the protagon found in the blood, brain and nerve structure—and the immediate result of this deficiency is a deranged and depressed condition of the organic nervous system; the direct source of organic functions. From this view it is evident that cod-liver oil must exert a very salutary influence upon tuberculosis; will correct to an important degree the lesions in the digestive function, and as it contains one part in one thousand of kephaline, it in proportion to this amount contributes to an effectual cure.

Statistics prove beyond question that cod-liver oil has cured many cases. But these results cannot be attributed entirely to its ready appropriation by the lacteals or the kephaline it contains; it embodies another very valuable one—the chloride of propylamin. The value of the latter agent has been pretty extensively demonstrated in rheumatism, and the verdict has been in its favor. In rheumatism there is an excessive development of lactic acid; this the propylamin corrects. In tuberculosis, we have butyric acid in the small intestines, and I have no doubt that a considerable part of the benefit of cod-liver oil accrues from this attribute. Moreover, this position is strengthened by the recollection of the fact that cod-liver oil was a popular remedy in rheumatism long before it was used in tuberculosis.

Basing my therapeutics upon the above deduction, I have found pulmonary tuberculosis a much more curable disease than it has been hitherto deemed. The kephaline in the cod-liver oil is, however, very often inadequate to supply the deficiency of the hypophosphite of oleine and glycerine, and consequently insufficient to a cure. To meet this exigency I, as early as 1857, investigated the chemical character of "protagon:" I then determined that it was hypophosphorus acid in combination with alkaline bases, albumen, oleine and glycerine, and that the hypophosphorus acid did not belong to the ordinary variety which unites with but one atom of a base, or a monobasic acid, but that it possessed the property of uniting with three atoms of a base—a tri-basic acid, comprehending the law which is common with all the phosphorus acids—that if the acid be developed in the absence of a nitrogenous element it will be mono-basic, while the presence of a nitrogenous element, will develop the tri-basic variety. I decomposed transparent phosphorus dissolved in pure olein, to saturation, and mixed with one-tenth part of beef juice under very heavy pressure of dry oxygen, formed by heating chemically pure chlorate of potassium until every evidence of free phosphorus was obliterated; this I administered with cod-liver oil. A formula varied to meet the peculiarities of individual cases, may be thus constructed:

℞.	Hypophosphite of oleine,	℥j.
	Cod-liver oil,	℥xv.

M.

Of this a tablespoonful may be given three to four times a day. It increases nerve power, removes the lesion in the digestive function, promotes the elaboration of a healthy chyle, and develops blood teeming with the elements of life and reproduction. If given before there be formidable disintegration of tissue, it will almost universally restore perfect health.

The hypophosphite of oleine is an easily made pharmaceutical product. The only apparatuses required are a Florence flask, with a glass tube extending from the flask to the bottom of the bottle containing phosphorated oil. The bottle should be about one-fourth full, and have a cork pieced with another glass tube extending a little below the cork. The phosphorus placed in heated oil saturates it; when it is cool filter it. Then mixing the oil with one-tenth of its measure with beef essence, the apparatus is adjusted. Dried and powdered chlorate of potassium is then mixed with half its weight of the per oxide of manganese and a gas flame applied. This develops oxygen, and the oxygen combining with the phosphorus in the presence of a nitrogeneous body forms a combination identical with the olei hypophosphite of the brain. The advantage of this compound is, that it may be mixed with cod-liver oil and thus given. Its advantage is decided, the therapeutical result far exceeds that attained when cod-liver oil is given without it. I regard it as a very important addenda, rather than a substitute for cod-liver oil, and it is one I can recommend with much confidence to the profession, believing they will obtain results more satisfactory than has hitherto been customary in tubercular phthisis. The fact of its being oleaginous and rather nauseous, associated with the general use in cod-liver oil, may be objections, but I also do not think that these objections justify its rejection. My attention, however, was attracted to the fact as early as 1857 to the conclusion, that phthisis found its prime factor in deficiency of brain phosphoids, and I availed myself of the German and French histologists to form a solution of brain phosphoids for therapeutical purposes. My first application of the theory to the treatment of phthisis was in the case of Mrs. Jane Pride, Frederica, Delaware. From my note book I copy the case: Began treatment May 10th, 1859. First husband died of pulmonary consumption. Her sister has hæmorrhages from her lungs and her family has a phthisical history. She had previously taken cod-liver oil, which nauseated her stomach. Gave her fish, phosphoids and tonics, with glycerine. Her condition, which was very unfavorable at the beginning of treatment, gradually improved, and by the first of January, 1860, she seemed well, regained her strength and former weight. She afterwards became pregnant, gave birth to a live child and soon afterwards the disease returned. She then became a patient of my friend Dr. Albert Whitely, of Frederica, and died in a few months. Although this case finally succumbed, I think it proves the efficacy of the phosphoid preparation now known as protagon. I cannot predict what the result would have been in the fatal relapse if she had been given protagon, but I can see no reason why she would not have recovered.

My second case was Miss Ella Lewis, of the same town. This case came into my hands in the fall of 1859; it was one of acute tuberçulosis. I gave protagon, but it was without any obvious advantage. Soon after this I tried the protagon on Mrs. Jane Prettyman, of Milford, Delaware. She came into my hands well advanced in the second stage of tuberculosis, a large vomica in the left lung, very harrassing cough and muco-purulent expectoration, diarrhœa, night sweats, hectic fever, and both lungs badly infiltrated with tubercle. Placed her on protagon; she slowly improved and finally regained a comfortable but not restored stage of health. She became pregnant, gave birth to a child, which *I believe yet lives*, and afterwards relapsed, grew worse while taking protagon, and afterwards died, as the patient of Dr. Nathan Pratt, of Milford. This last case was too far advanced for cure, yet protagon no doubt extended her life at least three years, and at one time promised to make a final cure. Another case exhibited its virtues in a very positive manner. Joshua Willey, aged 27. His entire family tuberculous; father and mother died of phthisis, as also several brothers and sisters. After being pronounced by a physician beyond relief, came into my hands. I gave him protagon. Under its use, very rapidly improved and became sufficiently well to leave his bed and assist his wife in her domestic duties in three months after he began using it. While I was very proud of the result, and flattering myself of curing an advanced case of consumption, he went out in the snow in his stocking feet (his feet being yet a little swelled so as to interfere with putting on his boots) contracted pneumonia, and died from it. This was in 1860.

The civil war soon diverted my attention from brain phosphoids, but in 1864, while at St. Augustine (Florida) General Hospital, I formed a beautiful mixture of cerebric acid and the cerebrates, and gave it to several broken down cases in the hospital with prompt results. This preparation was further perfected by hospital steward Hauverman and constitutes to-day my favorite preparation, the glycerite of kephaline. This I am using with good results, but I prefer to leave the cases longer under observation ere I dare assert they are safe from a return of this generally fatal disease. Glycerite of kephaline contains phosphide of nitrogen, cerebric acid, cerebrate of calcium, cerebrate of ammonia, and cerebrate of potassium, with glycero hypophosphorous acid. It does not contain the phosphites, but phosphates and oleo hypophosphorous acid which are embodied in the preparation known as *Protagon.* With this glycerite of kephaline and the hypophosphite of oleine I have found incipient phthisis usually curable; in the second stage a considerable per cent. will recover under their conjoined use, and in the third stage I have derived but little advantage from their use, preferring to rely on wine, quinia, wild cherry-bark, and sulphuric acid.

I believe, in using protagon or the glycerite of kephaline, it is important to isolate married women from their husbands. They rapidly invigorate the sexual apparatus of both sexes, and no doubt, will favor conception. While pregnancy may check the development of phthisis, lactation hastens it on with increased speed. The treatment in which the writer entertains the greatest confidence is plenty of rich, nourishing food, exercise in the open air, regulation of every habit of life and the restoration of the missing phosphoids. But it is useless to give phosphoids to a patient suffering from strumous dyspepsia. Butyric acid, it has been demonstrated, marks all the tests for phosphorous acid, and no doubt prevents their assimilation. It must be remedied ere we can derive any advantage from protagon or the glycerite of kephaline. Usually then, in addition to the alkaline tonic, the physician can employ a combination similar to this:

℞.	Ol. morrh.,	Oj.
	Emul. pancreat.,	℥iv.
	Propylamin,	ʒiij.

M.

Sig:—Tablespoonful thrice daily before and after meals.

This combination usually exerts a very salutary impression upon the duodenal lesion, and prepares the system for the administration of the glycerite of kephaline. This point being attained, the tonic alkaline mixture may be discontinued; the above cod-liver oil emulsion taken before meals and two drops of the glycerite of kephaline after meals. I find it an excellent adjunct to the glycerite of kephaline to administer it simultaneously with extract of malt. I have a decided preference for the German malt extract made by Löflund. It has ever given me a high degree of satisfaction and I believe it deserves all the eulogy bestowed upon it by Liebig, Trousseau, Niemeyer, Aitken, Zeiseman and others.

Torpidity of the liver is a usual accompaniment of incipient tuberculosis. For this condition, rheubarb, aloes and blue mass are excellent. Formerly I entertained the common prejudice against mercurials, but I am now confident they are not so injurious in phthisis as was formerly supposed. Judiciously given, the benefit which will accrue far exceeds the injuries they entail.

As the disease advances, the physician will encounter the virus created in the caseous morphology of inflammatory product, and to combat this virus, I have usually found the best results by combining carbolic acid with the cod-liver oil emulsion. Salicine and quinia, with sulphurous acid, seem sometimes to be of especial value. Permanganate of potassium is a valuable antiseptic internally and externally, and often checks the hectic fever and night sweats which are usually but the consequence of this form of blood poisoning. Iron, denounced by Trousseau and applauded by others, has in my hands often been of advantage, especially in the advanced stages, when there is anæmia and decided debility. Perhaps the muriated tincture is the most usually advantageous; combined with dilute phosphoric acid (made from phosphorus) and sulphate of quinia, it forms an admirable tonic; some prefer the proto-carbonate, others give a preference for the scaled salts. A preparation I have used with advantage is syrup of the phosphates of iron, quinia and strychnia made by my modification of Easton's syrup. The formula is:

℞.	Recently precipitated phosphate of iron,	grs. 384.
	Pure quinia (alkaloid),	grs. 192.
	Strychniæ,	grs. vj.
	Syrupy phosphoric acid (S. G. 1.5).,	f. ʒxviij.
	Syrup, sufficient to make	f. ℥xxiv.
		M.

Of this a drachm may be given thrice daily.

Manganese, especially the carbonate, and the syrups of the phosphates, is very often a valuable adjunct to the iron.

Complications:—Cough is usually the symptom which attracts the attention of the patient in the most impressive manner. The consumptive regards it as his especial and implacable foe, and upon it he centres his attention. He erroneously imagines that if he were free from the cough he would be entirely well; consequently it is difficult to manage his prejudices and anxieties. Unfortunately this unfortunate class of human sufferers almost always find in the almanacs and advertisements of the nostrum venders assurances of speedy relief. The consumptive's money and his life too often are the price of his credulity. He buys nauseating expectorants, embodying anodyne properties. He obtains temporary relief and imagines that he has found the balm to heal his lungs. He uses bottle after bottle until his devitalized frame sinks upon the bed, to rise no more. Nearly all these quack expectorants are poisonous to the consumptive; they destroy the integrity of the digestive functions; aid in tubercular deposit, and hasten their victim to the grave. I have yet to find a single case which had used Jayne's Expectorant and was afterwards benefitted by any treatment.

As a rule, the consumptive would do better without any expectorant or cough medicine. Sometimes they are really useful but more often it is a *questionable piece of policy* to employ them.

A formula I have used with advantage is:

℞.	Syr. pruni virg.,	℥iij.
	Fl. ext. glycrrh.,	℥j.
	Mucil. acacia,	℥j.
	Potassii cyanidi,	grs. ij.
	Acidi citrici,	ʒss.
	Morphiæ acet.	grs. iij.
	Spt. etheris nit.,	℥j.
	Syrup sanguinaria,	℥ss.
	Ext. prunus virginian, q. s. ad.,	℥viij.

M.

Sig:—Dessert-spoonful thrice daily.

Although I do not recollect a single case in which I could impute any injurious consequences—I use this and all similar mixtures but seldom. Prof. Dacosta usually relies upon the following combination to relieve the cough:

℞.	Morphiæ acetat.,	grs. ij.
	Potassii cyanidi,	grs. j.
	Acidi acetici,	f ʒj.
	Ext. prunus virg. fluid; et mucil acaciæ,	aa℥ij.

M.

Sig:—Three or four times a day.

The formula used in the Brompton Hospital occasionally proves very satisfactory:

℞.	Morphiæ mur.,	grs. ss.
	Acid hydrocyanic. dil.,	m. xv.
	Acidi muriatici, dil.,	m. ijss.
	Oxymellis scillæ,	f ℥ss.
	Aquæ., q. s. ad.,	℥j.

M.

Sig:—One or two spoonfuls as required.

I am now treating a case (August, 1871) in which I have used the above combinations in succession, without apparently modifying or relieving a very obstinate cough, but have received the most gratifying consequences with the following, which is but a slight modification of a favorite formula of Dr. Tanner:

℞.	Spts. ammonia arom; spt. chloroformi,	℥jaa.
	Morphia acetatis,	grs. j.
	Potassii bromidi,	ʒiij.
	Extract cinchona, flav. fluid,	ʒvj.
	Elixir calisayæ,	q. s. ad., ℥vj.
		M.

Sig:—Dessert-spoonful in a wine-glassful of port wine (California) every four hours.

Night sweats are best relieved by sulphate of atropia, oxide of zinc and ext. of camomile—the proportions I usually employ are one-sixtieth of a grain of atropia, one grain of the oxide of zinc and four grains of the extract of camomile, in two pills, to be taken at one dose at bed-time, and if there be much associated debility, I give during the day the following astringent tonic, if the already adopted treatment does not arrest the night sweats:

℞.	Acidi gallici,	℈iv.
	Acidi sulph. arom.,	ʒiss.
	Sulph. quinæ,	grs. xvi.
	Fl. ext. hamamelis,	ʒiv.
	Curacxo cordial,	q. s. ad., ℥viij.
		M.

Sig:—Tablespoonful thrice daily.

I find however, that in the earlier stages at least that the glycerite of kephaline, ʒxij; tinc. iodine, ʒj; pure glycerine sufficient to make ℥viij. a teaspoonful given in dessert-spoonful doses of malt-extract, is about all the medicines my patients require. Too much medication is disastrous to the consumptive and often hastens the progress of lung disintegration, and the exact boundary between too much and too little is often nicely defined. If pneumonia, pleurisy or bronchitis supervene, they must be promptly combatted, but the fact of the presence of tubercle must not be overlooked. All depressing agents must be avoided and yet vascular excitement must be limited. Counter irritation with croton oil, and a combination of tonics and anodynes, have given me the most satisfaction. Carbonate of ammonia in brown mixture, in which ipecac is substituted for the antimonial wine, may be given every six hours, and midway between the intervals one of the following pills:

℞.	Pil. hydrarg.,	grs. vi.
	Pulv. camphoræ,	grs. xxiv.
	Sulph. quiniæ,	grs. xij.
	Sulph. morphiæ,	grs. j.

Div. in pill no. xii. M.

Sig:—One pill every six hours.

Diarrhœa, a common and often serious complication, presents itself under different phases, sometimes being but an expressing of reflex irritation from a torpid liver, and defying the entire paraphernalia of opiates and astringents; sometimes a consequence of butyric fermentation, and in others depending upon tubercular ulceration. The first class is best relieved by blue pills, aloes and rheubarb; the second class by emulsion of pancreatine with alkalies and tonics; and the third by nitrate of copper and opium; solution of the ter. nitrate of iron; bismuth, pepsin and strychnia in combination; and vegetable astringents.

Hæmorrhage is a complication which always excites alarm. If not very profuse, I merely let my patients eat chloride of sodium, but if this is not adequate to its control, and threatens to to be dangerous, I find five grains of plumbic acetate and one-half grain of opium, given every one or two hours, or four hours, the most efficient anti-hæmoptisic remedy I have ever employed. A somewhat poly-pharmaceutical combination modeled after, and very similar to Dobell's favorite formula, is:

℞.	Tinct. digitalis,	ʒii.
	Fluid ext. ergotæ,	ʒij.
	Acidi gallici,	ʒj.
	Fl. ext. matico,	ʒij.
	Magnesiæ sulph.,	ʒiv.
	Acidi sulph. arom.,	ʒjss.
	Infusion hamamelis, virg., q. s. ad.	℥viij.

M.

Sig:—Two tablespoonfuls every three hours until the hæmorrhage is controlled.

In some cases in which there was extensive tubercular infiltration, I have used iodide of calcium in combination with the glycerite of kephaline with the happiest results. Within the past six months I have treated Mrs. J., within three squares of my office, with her left lung badly infiltrated and her menses arrested. With malt, iodide of calcium and glycerite of kephaline, her menses have become established, her cough has ceased, and with the exception of remaining dulness and modified respiration she seems to be in the enjoyment of perfect health.

I submit these theories, deductions and results to the candid examination of the medical profession, conscious that if I am not mistaken in my observations, that the application of the phosphoid constituents of the brain of animals and of wheat will prove of more value in tubercular disease than any remedy heretofore known.

No. 176 Bridge Street, (Bridesburg)
August 24th, 1871. Philadelphia.

NOTE:—The preceding pages, written during the summer of 1871, are part of a paper presented to the editor of the *American Journal of Medical Sciences* and considered by him not sufficiently well authenticated to occupy sixty pages of his Journal. All subsequent researches however, have contributed to establish theories of mine which were formerly considered vague delusions of an enthusiastic and impractical mind. A year after this manuscript was presented, Dr. S. R. Percy produced a prize essay on phosphorus, for the American Medical Association, confirming some of the chemical and pharmaceutical opinions here declared. He then gave his experience with an oleo hypophosphite which he formed by mixing lard oil, beef juice and phosphorous, and passing a current of dry oxygen through it until there was no evidence of free phosphorus—which he claims is identical with protagon. This is an error; it chemically and therapeutically corresponds with the oleo hypophosphorous acid of the brain. This compound he reports to have used in various diseases with good results, but does not seem to have tried it in tubercular disease. The remedy I produced in 1873, made by mixing oleic acid with glycerine, saturating with phosphorous and decomposing with the bin-oxide of nitrogen, is superior as a remedial agent to that proposed by Dr. Percy. A French chemist had however, as early as 1862 made oleo hypophosphorous acid so-called, but I am not sure that we have hypophosphorous acid until the compound is brought in contact with water, when it is unquestionably present. I am inclined to the opinion that previously it is in the formula of an oleo nitrogenous phosphide. At any rate it is a very efficient remedial agent. In 1873 I formed a preparation called wine of wheat, which I have used with excellent results in diseases of dentition, infantile phthisis and tabes mesenterica—made by beating wheat to a pulp, macerating with alcohol, precipitating and redissolving by port wine and dilute phosphoric acid. I imagine this is about identical, in its therapeutical and chemical phosphates, with the so-called vitalized phosphates, introduced by Dr. Percy about the same time, I am informed, although I was not aware of the remedy until March, 1877, when Mr. A. C. Dung sent me a circular.

In November, 1876, I published an article on "Protagon" in "New Remedies." It awakened intense interest and since then I am cognizant of the manufacture and sale of a thousand pounds.

I have letters from over two hundred physicians. Those who used it in advanced stages realized but little benefit; those who tried it before there was extensive lung disintegration speak of the result in satisfactoy terms; and those who used it in the early stages declare it a specific. My treatment at present is glycerite of kephaline, ʒxii; tinct. iodine, ʒj; pure glycerine sufficient to make eight ounces—dose, teaspoonful thrice daily in Löflund's extract of malt. Trommer's is said to be equally good but I have no personal experience with it.

2349 Catharine Street,
Philadelphia.

Ar. 7.—Diseases of the Rectum. Proctitis, or Inflammation of the Rectum.

BY REUBEN A. VANCE, M. D., Gallipolis, Ohio.

Vice President of the Gallia County, Ohio, Medical Society; Member of the Medical Society of the County of New York, etc., etc.

No. VI.

Although not a common affection, cases of proctitis, or inflammation of the rectum, are occasionally to be seen in the practice of every physician. Cases thus observed may be either acute or chronic in their course, primary or secondary in their origin, and simple or specific in their nature—consequently, the clinical character of each patient's history will vary with the complications developed during the progress of the case, the state of the sufferer's constitution, and the manner in which neighboring structures react to the irritation of the local lesion. Again, notwithstanding the number and importance of the cases in which the morbid process is due to erysipelatoid and dysenteric inflammation, yet proctitis, secondary to erysipelas and dysentery, will not be treated of in this connection. The same is true of that inflammation of the rectum, which is attended with the formation of pus in the sub-mucous cellular tissue near the anal orifice. Postponing the former until such time as justice can be done to the local complications of systemic diseases, and the latter, until abscesses of the rectum come up for treatment, attention at present will be drawn to such varieties of the disease only as the following cases illustrate:

(1) While attending to some medico-legal business in the New York City Court House, in April, 1870, a well-known judge, then on the bench, invited me into his private room for professional consultation. He informed me of a multitude of circumstances bearing indirectly on his mental and physical state, but it was not until almost every other subject had been exhausted, that he reached the important points in his present ailment. He said that he was then suffering from a boring pain in his sacrum, which occasionally shot down the back of the thighs; that his bowels moved ten or fifteen times a day, and without he was very watchful, they would discharge their contents involuntarily; and that for two

days he had experienced more or less trouble in voiding his urine. A few questions revealed the fact that the first symptom was experienced the preceding Sunday morning; that it came on as a sharp burning in the terminal orifice of the large intestine, while evacuating his bowels, persisted for a few hours in that form and then seemed to merge into a sensation of uneasiness, which lasted all the remainder of the day; and that on Monday morning, the attempt to evacuate his bowels brought on a sharp pain in the rectum; that with this pain, some change occurred in the bladder and urethra, which interrupted the previously free discharge of urine, and that during the whole of that day he was distressed not only by the pain and retention, but by a discharge of mucus from the rectum, which caused him to evacuate the large intestine every fifteen or twenty minutes. When warm in bed Tuesday night, he managed to empty his bladder without assistance and with no great pain. The secretion of rectal mucus continued free and was discharged involuntarily all through the night. During Wednesday he was much better; the pain in his sacrum and back was less intense, he could empty his bladder at will and had no trouble in retaining the mucus secreted by the lining membrane of the rectum. It was on Thursday morning that our conversation occurred, and in response to my inquiries, he stated that he had attended a well-appointed dinner late Saturday night and enjoyed himself greatly. Finally, in reply to an interrogatory to that effect, he enumerated the condiments and relishes he remembered partaking of, and among others, mentioned chillis, and said he had eaten a number of the latter—something he had never done before. Having had occasion to treat several patients suffering from catarrhal inflammation of the rectum, the result of a too free indulgence in this fiery condiment, I explained the nature of his trouble to my patient, and advised him to keep the recumbent posture as much as possible and, in the meantime, to live on a light diet and avoid all stimulants until his intestinal trouble subsided. I also advised him to wash out the rectum night and morning, with luke-warm enemata, and after his large intestine was thoroughly empty to throw into the rectum a half ounce of the following solution, to which an ounce of warm water had been added:

℞	Zinci Sulphat.,	℈ij.	
	Morphiæ Sulphat.,	grs. iv.	
	Infus. Krameriæ,	f ℥iv.	M.

(2) A gentleman from a western city, under my care a few months subsequently, while pursuing a course of treatment calculated to relieve the chronic cerebral congestion from which he suffered, imagined he was getting "bilious," and, on his own responsibility, took a large quantity of calomel one evening, following it next morning with a substantial dose of salts and senna. His bowels discharged so violently that day that he could not pay his regular visit to my office—late that night his daughter called and requested me to come at once to her father, as he was very sick. I found him very much prostrated and learned that his bowels had moved from fifteen to eighteen times since 9 o'clock in the morning. The last few evacuations were very painful; he was suffering from tormina and tenesmus, and complained bitterly of a sharp pain in front of the sacrum. Directing the patient to remain in bed and use a bed-pan, I ordered that each subsequent movement of the bowels should be followed by the injection of a starch enema, to which twenty drops of laudanum had been added. As he was very weak and nervous, a glass of champagne every two hours while awake, was also to be given him. When I called late the following afternoon I found that his condition was much the same as before. He was not so much prostrated and his evacuations were different in character, but the pain still continued; he was too weak to get up and he had to empty the large intestine once or twice every hour. He complained so much of the sensation as if a foreign body were in the anus that I made an examination of the part. The integument about the anus was very sensative, the sphincters were firmly contracted, while projecting from the anal orifice were prominent folds of mucous membrane. The latter were livid in color, dry to the touch, and exquisitely tender. There were no evidences of external hæmorrhoids apparent, and the patient denied ever before having any trouble with these parts. The calls to evacuate the bowels were sudden and imperious — when they did move, however, there was nothing but mucus passed. Much of the patient's suffering seemed to be due to spasm of the levator ani, which came on whenever these accumulations of rectal mucus were voided, and was much aggravated by the enema that followed each passage. He had not been able to pass water for twenty-four hours. There seemed to be no febrile reaction; the abdomen was not tender upon pressure; and the patient, when not suffering pain, manifested a disposition to eat as heartily as in health.

Finding that the enemata ordered had not produced the effect desired, they were suspended. The urine drawn from the bladder was natural in every respect — the catheter was admitted into the bladder readily, and caused no pain when its point was moved around freely in the cavity of that viscus. Directing the diet of the patient to be limited to beef tea and milk and lime water, the nurse was strictly enjoined to see that he did not move from the bed on any pretence. In place of the starch and laudanum enemata, the nurse was ordered to inject into the rectum an ounce of warm milk, to which a grain of the aqueous extract of opium, dissolved in about a fluid drachm of water, had been added. If the rectum was too irritable to retain the enema but expelled it at once, another injection was to be administered—if that too, came away, nothing more was to be done until the next movement of the bowels, when the same course was to be pursued as before. At 1 P. M., the following day, I again saw the patient. He was then fully under the influence of the narcotic, and I was informed he had had but four passages and five injections since my last visit. When I called the succeeding day, I found my patient entirely free from pain, and learned that but one enema had been administered during the preceding twenty-four hours. The sensitiveness of the parts about the anus had passed away, the projecting folds of mucous membrane were no longer visible, and with the exception of an unusual degree of irritability on the part of the sphincters, there was nothing unusual to be noted about the anal region.

(3) Inflammation of the rectum as a consequence of fecal accumulations, is familiar to every practitioner of experience. One of the first cases of this nature that came under my observation, was that of a young woman who, in 1868, after several weeks sojourn in the convalescent wards of Bellevue Hospital, was transferred to the uterine department in order that she might undergo an examination. This was in April, 1868, and Dr. Isaac E. Taylor was the Visiting Physician then in charge of the Obstetrical and Uterine Wards. She had been there but a day or two when I was summoned to her one night and learned that the nurse had found her in great agony on the floor of the water-closet, and had carried her to bed. She was only partially conscious, with a cold, clammy skin and a rapid, feeble pulse, when I saw her. When she revived enough to talk, she told me that her bowels had been torpid for a long time, and that during the previous month they had not aver-

aged a movement once a week, although during the last fortnight her appetite had been unusually good, and she had eaten freely and with relish. Her bowels had rumbled and pained her to an unusual degree all the previous day—about 9 P. M., she experienced a sudden and imperative call to the water-closet, but when she got there, she did nothing but strain violently and ineffectually. It seemed as if there was something in her bowel too large to pass through the outlet, and after striving in every possible way to relieve herself, she became faint, and was compelled to call for assistance. While relating the foregoing account, she was seized with violent expulsive pains, over which she seemed to have no control. She held her breath and clutched spasmodically at everything within her reach; the perspiration stood on her face in great beads, and her whole appearance was strikingly like that of a woman in the second stage of labor. Hastily making a tactile examination, I found the anal orifice distended to an enormous extent, while partially protruding through it there could be felt a smooth, round object, which was incompressible by any force that my finger could exercise upon it. When the woman's pain subsided a little, the projection receded somewhat, and a great quantity of rectal and anal mucus flowed out from between the lining membrane of the intestine and the substance which occupied its canal. Carefully forcing one finger behind this ball of excrement, while the fore-finger of the other hand was inserted in the vagina, the circular form of the substance could be determind beyond a doubt. When the next pain came on, and the circular mass was projected partially beyond the circle of the sphincters, I made an attempt to break up the mass with the handle of a heavy iron spoon. When the two were brought forcibly together, the former would yield a semi-metalic sound that was very peculiar. The slightest traction of, or pressure on the mass of feces caused an increase of the patient's bearing-down pains. Cautiously inserting the handle of a large iron spoon between the rectal walls and the fecal mass, and carrying it far enough into the bowel to obtain a firm hold on the latter, the handle of a second spoon was used to break up the mass of excrementitious matter. The ease with which this was effected when the ball was brought into contact with the two spoon-handles was in striking contrast with the waste of power before, when it was impossible to retain the fecal mass in one position. The quantity of hardened feces it was necessary to remove before the natural powers of the patient could be brought into effective operation was something wonderful. Finally there came a gush of fluid—the further evacuation of the retained matters was accomplished without assistance. The amount of material voided and its odor can only be appreciated by those who have had personal experience with similar cases. When the discharges ceased, the patient was utterly exhausted. An examination made after the patient had been changed and washed, revealed complete atony of the sphincter—an adult hand could have been inserted into the rectum without much trouble. The mucous lining of the organ protruded in large folds, which were œdematous and livid. A careful examination failed to reveal any rupture of the mucous membrane. Finding that no fluid could be retained in the rectum, four grains of the aqueous extract of opium was mixed with an ounce of simple cerate and rubbed into the mucous membrane of the rectum, after which a T bandage was applied, and the patient left for the night with instructions for her to have a tablespoonful of whiskey in water, every hour while awake. In the morning she was weak and irritable, and complained greatly of pain at the outlet of the intestinal canal. She said the lower bowel felt as if stuffed with hay, while its lining membrane was thick, hot and heavy. Later in the day, she complained of a throbbing in front of the sacrum, and a sensation as if a hard substance distended the anus. Several times during the night she had experienced an urgent desire to evacuate the bowels—the anal orifice did not contract at such times—however, nothing passed from her that she could observe, but she noticed on such occasions that the lower part of the rectum was violently retracted. About daylight she found that there was a free flow of mucus from the anus. On exposing the part and carefully noting its appearance before subjecting it to any irritation, the mucous membrane could be seen rolled out of the anus and forming a large prominence. The mucus, which was discharged in abundance, was thin and watery, and possessed a pungent, earthy odor. When the point of a finger was placed on the everted rectal mucous membrane, the levator ani contracted spasmodically, and the lower part of the rectum was drawn up toward the cavity of the pelvis. The finger could be gently passed between swollen and œdematous folds of the lining membrane of the rectum and carried its full length into the cavity of that intestine without meeting the resistance which in health is exercised by the sphincters of the anus. The patient was ordered a diet of milk and eggs, and the local application of opium and cerate was continued. On the second day thereafter the rectal discharge had assumed a yellow, puriform character, but the protruded mucous membrane began to subside, and the sphincters gave evidence of returning power. Five days after the removal of the fecal mass no mucous membrane was to be seen beyond the ring of the sphincter, the pain and uneasiness about the rectum had almost completely disappeared and the discharge was retained in the lower bowel by the activity of the sphincter. Local applications were discontinued and a tonic mixture, containing small doses of aloes and nux vomica substituted. On the seventh day her bowels moved freely, the effect of the medicine commenced two days before. From this time the patient was actively engaged assisting in the care of the ward, and when, during the latter part of the month, she was examined by Dr. Taylor, there were no apparent evidences of recent inflammation of the rectum except a slight thickening of the submucous cellular tissue and a little congestion of the lining membrane of that organ.

(4) Injuries of the rectum are to be ranked among the rarer causes of proctitis. In 1868, an awkward nurse, while administering an enema to a convalescent patient in one of the surgical wards under my care in Bellevue Hospital, inflicted such violence on the mucous membrane of the rectum as to cause acute inflammation of the part. Two hours after the injection the patient was in such agony as to require the administration of an anodyne. An examination at that time failed to reveal any of the phenomena so generally present in cases that have existed for a length of time. The sphincters were firmly contracted; the integument around the margins of the anus was quite irritable; yet there were no projecting folds of mucous membrane; no evidences of either external or internal hæmorrhoids; and no discharge, of any kind, from the lining membrane of the rectum. The patient complained so bitterly when any attempt was made to obtain a view of the parts within the sphincters, that a thorough examination was not made. A suppository, containing two grains of the aqueous extract of opium, was administered, and the patient directed to remain in bed. About fifteen hours subsequently I was again called to prescribe for this patient. He was feverish and flighty, with coated

tongue, tympanitic bowels and great thirst. He had eaten nothing during the day; his bowels had not moved for four days, and no urine had been passed since early morning. Percussion over the lower part of the abdomen demonstrated slight distension of the bladder. The patient was annoyed by an almost constant sensation in his large intestine as if his bowels were going to move, and he was continually calling for the close-stool, although his passages were exceedingly small, and consisted of nothing but mucus. A hypodermic injection of one-third of a grain of morphia was administered, and the patient ordered to be supplied with a bed-pan. During the remainder of the night, the patient rested well; in the morning, there was a free discharge of a muco-purulent fluid from the rectal mucous membrane, which, at intervals, was voided involuntarily; the patient did not seem to suffer much, but his febrile symptoms still persisted. On examination, a large, œdematous swelling could be seen encircling the anal orifice; the mucous membrane of the lower part of the rectum protruded freely; while the whole perineal region seemed unusually hot and tumid. The sphincters were contracted, but their resistance to the exploring finger was not great. Late in the afternoon of the second day, this patient's bowels moved spontaneously, discharging a quantity of hardened feces at first, and then a large amount of bilious matter, which seemed to greatly irritate his rectum. In the evening there was a marked increase in the quanity of muco-purulent matter voided, and also, of the suffering experienced by the patient. Suppositories of cocoa-butter and the aqueous extract of opium were directed to be administered, the rectum having been first carefully washed out with luke-warm water. The latter proved so agreeable to the patient that a double catheter was inserted into the rectum—a bed-pan being used to prevent soiling the bedding—and the inflamed walls of that organ were subjected to the action of the water for twenty minutes. There was a decided improvement observable in the patient next morning; his fever was broken, the discharge from the rectum was less, the swelling of the anus had diminished markedly, while the mucous membrane of the rectum no longer protruded and there was much less pain in that organ than heretofore. The rectum was directed to be washed out as on the previous evening, but a solution of sulphate of zinc was added to the water used until the latter contained three grains of the sulphate to the ounce of fluid. After the injection the patient complained of spasm of the levator ani muscle; the câtheter had to be used for the first time this (the third) morning. A suppository, containing two grains of opium, was placed in the rectum immediately after the urine was drawn. The patient improved so markedly during the day that no local measures were employed the succeeding night; in the afternoon and evening the discharge was slight and readily retained, the mucous membrane kept its place, and no difficulty was experienced in emptying the bladder. That evening his bowels acted naturally; the passages were soft, and caused but little irritation and pain. On the fourth day the patient was convalescent. The use of astringent enemata was directed to be continued until all discharge from the rectum ceased. This patient's condition when examined some months subsequently, will be referred to hereafter.

(5) In this connection the following circumstances are not devoid of interest: In the spring of 1872 I had occasion to visit a well-known summer resort not far from the city, several weeks prior to the opening of the "Season." Nevertheless there were quite a number of visitors on the ground even thus early, and the proprietor of the principal hotel complained that the unexpected influx of boarders had seriously delayed certain necessary repairs and improvements then in progress. While waiting to keep the engagement that had brought me there, an acquaintance, a gentleman from the city who, with his family, was stopping at the hotel, requested me to visit his wife, then confined her to room with diarrhœa. I did so, and was informed by the lady that she came to the Lake perfectly well a fortnight before, but that a week afterwards, her present illness declared itself. One night she retired with a smarting, burning, unpleasant feeling in her lower bowel; before midnight this had changed to a very decided pain, which extended all through the pelvis; and when her husband came to bed she had him prepare and administer to her a "diarrhœa powder," such as her family physician always supplied them with in the summer before leaving town. The account she gave of the phenomena and progress of her case subsequently, was very clear and specific. This pain returned worse than ever next day, but it at no time extended above the region of the rectum; occasionally there was spasmodic retraction of the anus, with acute agony—at such times a slight amount of fluid would escape involuntarily from the lower bowel. Her most distressing symptom was the incessant throbbing of the

rectum, which persisted day and night. It seemed to her as if that part of her intestinal canal were filled with some fluid almost scalding hot, and she was continually tempted to make forcible bearing down movements for the purpose of ejecting it. Still she had no heat of skin, no anorexia - in short, no febrile symptoms. Her bowels moved twice or thrice daily, and the motions were of a feculent character. There seemed to be a very free secretion of rectal mucus, which, together with a certain amount of offensive, purulent matter, collected in the terminal portion of the alimentary canal without any evidence of its presence, until all of a sudden the patient would experience an instantaneous demand to evacuate the contents of the large intestine. Generally, reflex contraction of the muscular walls of the intestine and the abdomen followed this sensation so quickly, that the contents of the rectum were voided involuntarily and unconsciously. It was owing to this fact, more than to anything else, that she remained in her own room and kept her bed. Her appetite was natural—she experienced no unusual longing for any particular article of food, and had no trouble in regulating her diet. When this lady concluded detailing her own symptoms, she said that she was not the only one of the family thus affected—that her sister, a young lady of eighteen, had been attacked three days before, and her daughter, a girl of eleven, began to complain that very morning. My interview was brought to a close by the arrival of a message which called me to the presence of one of the parties I originally came there to see. By the merest chance I learned that the reason I had been kept waiting was their absence from the hotel, visiting the house of a friend who had a summer residence in the mountains several miles distant; that the repairs then in progress compelled the ladies of the hotel to use a privy attached to one of the gardener's houses, which was so foul and filthy that any reasonable inconvenience was preferable to being compelled to put foot inside its precints; and that in consequence of this state of affairs, they daily drove to the house of their acquaintance, and spent several hours on his premises. Before returning to the chamber of the lady whose case has just been detailed, I made inquiry, and learned more of the character of the vault to which the ladies of the hotel were compelled to repair. The house to which it was attached was a small cottage; the privy itself consisted of a ten foot vault, tightly enclosed above and walled with brick, which was ventilated by means of two small holes, not six inches square, cut on opposite sides of the six by six (feet) out-building that surmounted this cistern-like excavation, filled to over-flowing with reeking human excrement. This building was kept locked, when not occupied, but as there were more than thirty persons in the hotel whose only convenience it was, it was not empty much of the time. When I again spoke with the lady, I inquired relative to the effect of remaining in the poisonous atmosphere of the privy, but could elicit no fact of importance. Subsequently, however, the connection between the fœtid exhalations of this out-house and the inflammation of the rectal mucous membrane, not only in the three cases to which I have alluded, but in two other ladies boarding at the hotel, was established beyond a doubt. In one of the latter, I was informed, the symptoms of proctitis subsided when the young lady went to the city and remained at home four days. Returning on a Friday, and remaining at the hotel until Tuesday, the disease came on again. Her father then hired a cottage and removed her to it—in a week she was well, and remained well during the remainder of the season. In another case, the patient recovered without medical treatment, by ceasing her visits to the privy. When the improvements in process of construction at the time I visited the hotel were completed, all the cases in the hotel recovered, and no new ones were developed. The proprietor of the hotel had the old privy removed and the vault covered with earth early in the "season."

(6) Cases such as the following can be adduced by almost every practitioner: A young servant girl, after spending Christmas eve in a warm room, and dancing excessively, was conveyed to her employer's house in a close carriage by her escort, but the door being fastened she met with some unexpected delay in getting in, and for more than half an hour she stood on the cold stone step exposed to a bitter driving east wind. When finally admitted, she was thoroughly chilled, and, although she at once went to bed, it was a long time before she fell asleep, on account of the cold. The next morning she felt sore across the small of her back, was feverish, and when the air struck her, the cold chills would run up her spine. She also suffered from a violent pulsating pain in the fundament; sitting was very painful; and the attempt to pass water brought on a series of agonizing spasms in the muscles of the perinæum. She grew worse all that day; at night she was

extremely restless and somewhat delirious—on the 27th of December her employer had her removed from his house and that afternoon she was admitted to Ward 18, Bellevue Hospital. When I saw her late that evening she complained of pain in and spasmodic contraction of the lower bowel, and the structures adjacent to its outlet. There were occasional involuntary discharges from the rectum, and the liquid passed was a thin, colorless, but offensive fluid, evidently the secretion from the glandular structures at the lower end of the alimentary canal. Touching the anal region caused the patient great pain and was followed by firm retraction of the anus. The sphincters were contracted so strongly that it was impossible to make a digital examination of the rectum. The patient's bowels were free; each day she passed a number of feculent motions; her tongue was coated, pulse rapid, and other febrile symptoms well marked. No urine had been voided for forty-eight hours, and when the catheter passed, the contents of the bladder were ammoniacal and fœtid. The treatment ordered consisted mainly in the local application of opium suppositories, with such cooling drinks as the patient craved. On the morning of the 28th the nurse was ordered to wash out the patient's rectum with a solution of sulphate of zinc, of the strength of one grain to the ounce of water, and in doing so, she was directed to use a double catheter, the end of which was to be inserted beyond the ring formed by the contracted sphincter, thus permitting the walls of the rectum to be subjected continuously to the action of this lotion for a length of time. Quite an amount of excrementitious material was dislodged from the rectal walls by this means. During the afternoon the discharge assumed a purulent character; the pain began to subside, and the patient voided urine naturally. Following the injection of a solution in the evening, similar to the one employed in the morning, there was a sudden protrusion of a number of red and infiltrated folds of rectal mucous membrane which the nurse was unable to return. When I saw the patient an hour or so subsequently, she was in great pain. It seemed that the efforts made to return the protruded folds excited spasm of the sphincters, and interrupted the circulation through these prolapsed tissues. The parts were deeply congested, dry and almost strangulated when I first saw them. Enveloping the structures in an oiled rag, the patient was placed in the knee-breast position necessary for a uterine examination, according to Sims' method, when a few careful manipulatory efforts caused all the protruded parts to return into the cavity of the rectum. A suppository (2 grains of aqueous extract of opium with cocao-butter) was administered, and the patient left for the night. The subsequent progress of the patient was uninterrupted—she recovered quickly and satisfactorily. About the middle of January, 1869, she was discharged, entirely well, apparently, although she occasionally complained of a distressing sensation in the rectum, just as if there were some foreign body occupying the cavity of that organ.

The number of causative influences which operate in the production of proctitis has been greatly curtailed by the omission, so far as the purposes of this review are concerned, of a variety of different forms of that disease. Erysipelas, dysentery, syphilis and acute phlegmon are active agents in generating inflammation of the rectum, yet we have nothing to do with their influence in that direction at present. Glancing at the extensive field from which the preceding cases were taken, it is readily apparent that the influences which excited the inflammatory process can be isolated in each instance. Dividing the ætiological field into predisposing and exciting causes, and considering the latter first, it is evident, so far as the foregoing cases are concerned, that the manner in which the exciting causes exerted their influence, furnishes a basis for their useful subdivision. Thus, in the first three cases, the morbific agents acted from within, while in the last three, on the contrary, the pathological influence came from without. In the first subdivision, inflammation of the rectum was excited by irritating ingesta, morbid secretions and excretions, and the irritation developed around an accumulation of feces in the intestines; in the second, the proctitis was due to injuries inflicted upon the rectal mucous membrane, to the exposure of that structure to the foul exhalations arising from a filthy privy vault, and to the influence of cold and wet on a patient at a time when she was warm and perspiring. While exemplifying in the manner indicated the protency of these two classes of exciting causes, these cases are noteworthy on account of the slight influence exercised by those circumstances generally included among the predisposing causes. It is very easy to adduce cases in which age, sex and occupation, maladies of adjacent parts and other diseases of the rectum—in short, those habits, customs and physical conditions which cause a flow of blood to the rectum—are powerful agents in determining the character, duration and result of the diseases of that organ. Yet, if the aim of the observer is to determine the influence of certain given agents, he must select examples which are as free as possible from the action of predisposing causes. A brief review of the different causes operative in the production of inflammation of the rectum will illustrate this fact:

CAUSES OF PROCTITIS.

I. *Predisposing*: —

1. Age.
2. Sex.
3. Occupation.
4. Disease of adjacent structures.
5. Other diseases of the rectum.

II. *Exciting*: —

Acting from within.
  1. Irritating ingesta.
  2. Morbid secretions and excretions.
  3. Intestinal accumulations.

Acting from without.
  1. Injuries.
  2. Foul exhalations.
  3. Exposure to wet and cold.

The manner in which the predisposing causes operate is self-evident, and needs no illustration. The same can be said of most of the exciting causes. The influence of foul exhalations on the mucous membrane of the large intestine is a question deserving of more attention than has yet been paid to it. It is a well known fact that there is a species of what is generally denominated "dysentery" developed in many little villages during the summer months, which is very prone to attack strangers, especially visitors that remain there only during the warm weather. In a number of instances I know that the disease was nothing but an acute or subacute form of inflammation of the mucous membrane of the rectum, apparently due to the foul emanations from neglected privy vaults. Those who live the year through exposed to this miasm seem to get acclimated; only those suffer who have not previously been subjected to any such pathological influence.

The symptoms due to inflammation of the rectal mucous membrane are not numerous. Pain along the track of the intestine, a sensation as if a foreign body were distending the anal canal, firm contraction of the sphincters of the anus, occasional paroxysms of spasmodic retraction on the part of the levator ani, retention of urine, a tendency to diarrhœa, together with the constant secretion of mucus by the lining membrane of the rectum, and the occasional involuntary discharge of the latter, are the more important ones. The pain experienced varies greatly in intensity. In some cases there is hardly a sensation of uneasiness; in others, the agony is almost unbearable. In the early stages of the affection, pain is limited to the region of the terminal portion of the large intestine, but, as the inflammatory process extends, the pain radiates in different directions. In some patients, it shoots round the waist, and runs down the lower extremities; in others, it radiates upwards, and may extend over the head or pass down the arms. A disagreeable sensation in front of the rectum characterizes the progress of most cases: one of the earliest and most trustworthy indications of amendment consists in a diminution in the intensity of this pain. In many instances, the development of pain in the rectum is succeeded by a tendency to diarrhœa. The evacuations may be small and unsatisfactory, or large and feculent—in either case, the frequency of the patient's passages at first, is greatly under the control of his will. Finally, the material discharged becomes muco-purulent, and the motions involuntary. If the latter are frequent, the patient soon suffers from tormina and tenesmus, and is greatly annoyed by a sensation as if the rectum were distended by some foreign object. Spasm of the sphincters is a painful and annoying symptom—if there is protrusion of the swollen and infiltrated lining membrane of the lower part of the large intestine, spasm of the sphincters may cause strangulation of the protruded part. Without promptness in relieving the latter, sloughing of the compressed tissues speedily ensues. The irritation of the orifice of the intestine provokes involuntary retraction of the levator ani, and causes great agony. The contraction of the muscular tissues about the origin of the urethra and neck of the bladder, which causes retention of urine is due to the same cause. The painless retention of the mucus secreted by the inflamed structures and its sudden and forcible discharge, almost without warning to the patient, are other examples of reflex action. The firm contraction of the sphincters does not relax; consequently, the liquid evacuated is forced through the anal canal in a stream no larger than a knitting needle. The power that accomplishes this, seems to be furnished by the contraction of the upper portion of the rectum—a region but poorly supplied with sensitive nerves, a circumstance that doubtless accounts for the unconscious nature of the act.

The cases detailed were selected on account of their freedom from complicating phenomena, and, for this very reason, they cannot be claimed as perfect representations of proctitis as it comes under the observation of the practitioner. In the majority of instances the course the surgeon adopts, in selecting his therapeutical measures, will be governed by the indications afforded, especially in regard to complications. The formation of abscesses or fissures, the development of hæmorrhoidal tumors or prolapse of the lining membrane of the rectum, develop pathological indications which the cautious surgeon will endeavor at once to meet. In treating these complicating phenomena, no other measures will be necessary than such as will be described in due time when treating those abnormal conditions as primary pathological states—a duty which will be performed on a future occasion.

The diagnosis of proctitis will require but few words. To one at all familiar with the pathological anatomy of the rectum, the recognition of inflammation of its lining membrane is easy. In many cases, the symptoms alone will suffice for a diagnosis. The history of most cases of this affection furnishes a series of symptoms that are quite characteristic. In those few instances in which this is not true, recourse must be had to a physical exploration. The necessary details of the latter have already been recounted sufficiently in preceding articles. To one familiar with the morbid anatomy of this organ a glance at the mucous membrane of the rectum will at once settle the diagnosis. This tissue is infiltrated and swollen. In cases such as have been detailed in this connection, the swelling is due to serous effusion. The lining membrane is thrown into folds, and where the latter are thickest, the serous effusion is greatest. In cases where protrusion takes place, there has doubtless been extensive effusion, separating the muscular walls and stimulating their contractility. The mucous membrane, which at first was livid from great congestion, with more or less interruption of the local circulation, assumes a peculiar appearance to which no description can do justice. Around the verge of the anus, especially just beyond the junction of the skin and mucous membrane and beneath the delicate integument of the perineum, the blood vessels are markedly distended. In many cases there is swelling of the thickened tabs of skin in the vicinity, with œdematous infiltration of the cutaneous folds extending toward the anal orifice. This appearance was described at some length, when treating of ulcer of the rectum, and is a condition common to a number of different affections of that organ.

Uncomplicated cases of proctitis being rare, it is but seldom that a uniform plan of treatment can be persisted in through a series of cases. The indications to be complied with in an ordinary case of rectal inflammation, are to relieve pain and subdue local irritation. Both can, in a measure, be met by the internal administration of opium—the local exhibition of that drug in a bland and easily absorbed form, however, fulfills the indications far more thoroughly. In cases in which the secretion from the lining membrane of the rectum is profuse, astringents may be required. It quite frequently happens that the course of treatment adopted in the commencement of the patient's illness has to be modified by the development of complications. The formation of abscesses will require one class of measures—prolapsus of the rectal mucous membrane and strangulation of the protruded part, demands another series. When external hæmorrhoids form, or internal piles become sphacilated as a consequence of inflammation in the surrounding parts, the use of the enema pipe must be dispensed with. In the first case, the patient's sensations must be consulted, and warm or cold applications employed according to his wish. It is often impossible to say which one will afford relief, and both must be tried before the question can be considered settled. Perhaps the result will be contrary to the patient's preconceptions—it has not infrequently happened that patients under my care, suffering from extravasated blood in the delicate tissues about the anus, have besought the nurse to apply cold applications externally and when in due time their wish has been complied with, the pain induced has been so great as to make them cry out in agony. Sometimes, again, warm applications fail to give the relief that attends the use of ice and ice-water. It is owing to this experience that the writer prefers to be guided by the patient's feelings, rather than by his own preconceptions. When the site of large, hard, venous hæmorrhoids becomes covered with gangrenous tissues—a change similar to what ensues when piles of that nature are purposely strangulated with a ligature—it is better not to use the enema pipe, rather than to have it employed by unskillful parties. If the physician will wash out the rectum himself, using luke-warm water, to which an ounce of yeast and a tablespoonful of powdered charcoal has been added to every quart of the former, he will not only discharge the particles of excrementitious matter which lodge in the folds of the rectal mucous membrane, but will determine the size and firmness of the slough. The latter seems due to coagulation of blood in the large vessels of the hæmorrhoidal tumor; its separation is regulated by the same law that governs the cure of ligated tissues. The management of the fissures, ulcers, abscesses, or fistulæ, which result from inflammation of the lining membrane of the rectum, need not be gone into here, inasmuch as the measures necessary to be adopted either have been, or will be treated of in connection with what has been, or will be said of those lesions from other causes.

To the two indications just recited—to allay pain and relieve local irritability—is to be added that prime requisite for all rational treatment, the removal of the cause. Again, attention must be devoted to the activity and character of the inflammatory process. Mechanical means must be resorted to for the removal of fecal accumulations and alvine concretions. Hot hip baths are of great service in all forms of the disease. Where ascarides are suspected, recourse must be had to vermifuge medicines; terebinthinate enemata are very serviciable, not only when parasites are suspected, but whenever the alimentary canal is in an atonic state. Attention must be given to the state of the secretions—if the bowels have been torpid and the patient's habit costive, he will be the better for a mild dose of mercury with chalk, followed next morning by a saline cathartic. Circumstances must determine the character of the tonic administered. When it can be done, cod liver oil, three times a day, not only builds up the patients strength, but keeps his bowels loose. In some cases, this remedy is either contra-indicated by the patient's state, or is too nauseating for him to take—in such cases, a bitter infusion should be combined with some natural mineral water of a cathartic character.

The use of tobacco renders inflammation of the rectum hard to cure. In some cases, it converts the acute into the chronic form of the disease. In a case where the patient contracted proctitis from exposure to wet and cold riding down a mountain on the outside of a stage coach, the gentleman procured as good surgical advice as New York City afforded, yet he did not get well. Pain in the rectum annoyed him, and he was greatly distressed by a constant discharge from the anus that soiled his linen and kept him in an anxious and despondent frame of mind. He consulted me in 1873, saying that he was willing to do anything that would afford him relief, but he was fearful that his disease was incurable. There was a faint tradition in his family, which led him to believe that some of his ancestors had died of cancer of the anus. A physical exploration revealed a deeply congested state of the rectal mucous membrane; the anal sphincters were hypertrophied and irritable; but there was no roughness and no hardening of the parts within the reach of the finger. His bowels were a little more free than usual, and he had acquired the habit of taking brandy to relieve them—more, perhaps, than was good for him in other respects. He was a hearty eater, and an excessive smoker. The peculiar point about the case was the existence, all over the lower part of the rectum, of small trachomaton granulations, such as exist in the ocular mucous membrane—little bodies like grains of sago, which felt hard and resisting to the finger. Directing the patient to wash out the bowel night and morning with luke-warm water, to every pint of which a scruple of sulphate of zinc and an ounce of laudanum had been added, I cautioned him against the brandy and advised him to abstain entirely from smoking until his bowel got well. Instead of returning in two weeks, I saw nothing more of this gentleman until some six months subsequently, when I accidently ran across him on the cars, and was informed that he had recovered entirely—that he did quit smoking and use the injections as directed, and finding after a few day's abstinence from the former that he was improving, he did not resume the habit. Before the fortnight expired his rectum caused him no more trouble, and the time he was to return and report to me passed without his thinking of the matter. This peculiar granular state of the rectum is not common, yet several cases have passed under my observation, and on some future occasion I shall have something to say concerning them.

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Art. 8.—The Food of the Ancients, and of Modern Infants.

By WILLIAM A. GREEN, M. D., Macon, Ga.

After writing several papers on modern pharmaceutical and chemical science—detailing many new remedies and compounds—it is really pleasant to turn our mind and thoughts from nauseous physic to the more palatable subject of *diet*—something to *feed* the physical system. The subject of food for mankind is a peculiarily interesting one—whether viewed in the light of medicine or otherwise. The ancients, during the period of their highest civilization and prosperity, devoted far more attention to this subject than we moderns, and yet, strange to say, left on record less evidence of *scientific* research concerning the food they eat than any other matter intimately connected with their history. Man, destined by Providence to wander over the globe, and to live in various climes, is essentially an omnivorous animal. According to the country he inhabits, its productions, and the nature of his pursuits, his mode of living differs. The inhabitant of cold and sterile regions, on the borders of the ocean, becomes *ichthyophagous*; and fish—fresh, fried, smoked or salted—is his principal nourishment. The bold huntsman lives upon the game he pursues; while the nomadian shepherd, who tends his herd over boundless steppes, supports himself on the milk of his flock. In warm countries, fruits and vegetables constitute the chief support of life; and there the disciples of Pythagoras can luxuriate in the rich product of a bountiful soil, solely debasing themselves from *beans*, which, like all flesh, they consider to have been created by putrifaction. What would these good disciples have done among the Scythians and the Gauls, who, according to Sidonius Apollinaris, mingled blood and milk for food? Solitosque cruentum. Lac potare Gitas, ac pocula tingere venis—or the stunted natives of the Artic regions, who feed upon whales and seals, drink deep potations of train oil, and consider the warm blood of the seal an exquisite beverage, dried herrings, moistened with blubber, a dainty, and the flesh of the seal, half frozen in snow during the winter, or half corrupted in the earth in summer, the most delicious morsel. In some desolate tracts of the globe where food is very scarce, we find the wandering Indian satisfying his cravings with *earth* and *clay*; and Humboldt informs us that the Ottomaques, on the banks of the Mata and the Oronoco, feed on a fat, unctious earth, in the choice of which they display great epicurian skill, and which they knead into balls of four or six inches in diameter, and bake slowly over the fire. When about to be used, these clods are soaked in water, and each individual consumes about a pound of them in a day. It is in temperate regions that man displays his omnivorous propensities; there animal food can be abundantly procured, and every description of grain, roots and fruit easily cultivated.

Various philosophers, in idle disquisitions, have endeavored, by the most absurd hypotheses, to determine what is the natural food of man, and to show that he is not created *omnivorous*. The comparison between our species and animals confutes these vain theories. Man, by his natural structure, was created omnivorous, and there is no doubt but that a judicious, mixed alimentation is the best calculated to insure health and vigor, and enable the ambitious or the industrious wanderer to spend his winters near the poles, colonize beneath the equator, or inhabit regions where the hardiest of animals must starve and die. The masticative and digestive organization of man assigns to him an intermediate rank between carnivorous and herbivorous creatures. It is to the abuse of this omnivorous faculty that Providence has bestowed upon mankind, that we owe many of the diseases under which our species labors. "Multos morbos, multa fercula fecerent," sayeth Seneca; yet we are far more temperate in the present age than the ancients during the period of their high civilization and prosperity. Their excesses must have been of the most disgusting nature, since. to indulge more easily in their gluttonous propensities, they had recourse to *emetics* both before and after their meals—"vomunt ut edant, edunt ut vomant, et epulas quas tolo orbe conquirunt nec concoquere degnantur," was the reproach of the above quoted philosopher. Seutonius and Déon Cassius give Vitellius the credit of having introduced this revolting custom into fashion; and splendid vessels of gold and silver for the purpose were introduced in their feasts. Then, the sums expended by the ancients on their tables exceed all belief. Vitellius, the prince of gluttons, expended upwards of £3,200 daily, and some of his repasts cost £40,000. At some of them, according to Seutonius, 700 birds and 2,000 fish were served up. Actius Verus laid out 600,000 *Sestertii* on one meal; and some of the dishes of Heliogabalus cost about £4,000 of money.

The freaks related of this emperor are scarcely creditable; but his gastronomic profession may be easily conceived when we find that his very mats were made with the down of hares, or the soft feathers of patridges. Philoxemus wished he had the throat of a crane, that he might *prolong* the delights of eating.

The diversity of *substances* which we find in the catalogue of articles of food among these ancients, is as great as the variety with which the art or the science of *cookery* prepared them. The cooks of the ancients appear to have been much more consumate in their art than our modern practitioners. Athæneus records various descriptions of their incomparable science. A new dish immortalized its inventor, and transmitted its name to posterity. Philosophers and poets gloried in their culinary science; the pleasures of the table were the subject of their writings, their song and their verse.

So refined was the *taste* of the ancient *bons vivans*, that Montanus, according to Juvenal, would proclaim, at the *first bite*, whether an oyster was of English produce or not. These ingenious gluttons had recourse to every experiment that could add to their enjoyment. Philoxemus, and many others, used to accustom themselves to swallowing *hot water*, that they might be able to attack scalding dishes before less fire-proof guests would dare to taste them. Sinon maintained that cookery was the basis of all arts and sciences; natural philosophy taught us the seasoning of dishes; architecture directed the construction of stoves and chimneys; the fine arts, the beautiful symmetry of each dish. He applied the principles of war to the drilling and marshalling of cooks, confectioners and scullions—posting proper sentinels to watch the fire and videttes to keep off idle intruders. He said that man is a "cooking animal"—and a proper bill of fare he considered the *ne plus ultra* of human genius. Their tastes and selections of substances for food was peculiar and various. Mæcenas delighted in donkey-flesh, and compared the wild ass to venison. Plutarch tells us the gravid sow was considered a delicious mess, fit for the Gods. Catius tells us how to drown fowls in Falernian wine to render them more luscious and tender. Several fishes were immortalized as articles of food. The muræna helena was educated in their ponds, and rendered so tame, that he came to be killed at the tinkling of his master's bell or the sound of his voice. Hertius, it is said, ceeded six thousand of these fish to Cæsar as a great kindness and favor.

Snails was a great dainty. Fulvius Herpinus was immortalized for the discovery of how to feed them on bran and other articles, and Horace informs us they were served up, broiled on silver gridirons. Grasshoppers, locusts and various insects, were equally acceptable to our first gastronomic legislators. Swans and cranes were first deprived of their sight, by the Romans, in order more effectually to *fatten* them. The modern gastronomist perhaps is not aware that it is to the ancients he owes his delicious fattened duck and goose livers—the inestimable *foies gras* of France. But the Romans certainly knew not the *turkey*, for they are no where mentioned in all their history (a fact not generally known)—this gift we moderns owe, I think, to the *Jesuits*.

The singular influence which *climate* exercises over the quality and properties of food, especially *vegetable*, is interesting and instructive. We have not space to dwell on this part of our subject. But we find plants that are *poisonous* in some countries, edible and wholesome in others.

Culture and *soil* modify plants in a singular way. Flowers which yield a powerful perfume in some latitudes, are inodorous in others, and according to climate, their odor is distressing or pleasant. *Cultivation* brings forth singular intermediate productions. By its magic power we have seen the coriaceous and bitter almond transformed into the luscious peach, the sloe into the delicious plum, and the common *crab* into the golden *pippin*. The celery sprung from the nauseous and bitter *apium graveoleus*, and the colewort is metamorphosed into the cabbage and the cauliflower. All cruciform plants degenerate within the tropics, but acquire increased energies in cold countries.

No where in ancient history do we find a sentence devoted to food for innocent infantile life—all for mankind—and we see to what ridiculous and disgusting extremes these licentious gastronomers carried their excesses. Diffusion of knowledge and habits of industry has overcome all these gluttonous propensities—and all the sciences, especially chemistry, has done much to improve our food, its mode of production and manner of preparation. In these modern times our pharmacists have not neglected and forgotten the infants, the little children, as did our ancient brethren. Our Savior, when on earth, remembered them when He said: "Let little children come unto me."

Many have been the efforts to manufacture a suitable diet for the little creatures, a few approximating the mother's milk—something to suit their delicately organized stomachs, and that they can digest and thrive on. It has been greatly needed especially in these latter days of fashion, of pride, and of high life, when mothers refuse to nourish their own offspring, or trust them to "*wet nurses*," or the artificial food sold by druggists. But it frequently happens that infants must be reared with this food, because of death or disease of the mother, when it is of the utmost importance that we be able to select the *best* the market affords—and I desire to give my own experience in this particular. In a practice of 25 years, I have used all the preparations I have heard of—and for the past few years have been prescribing what is known in the drug stores by the name of *papoma*, a nutritious and easily digested food for infants, as well as an excellent diet for adult *invalids*. The foundation for good health, a happy life and ripe old age, or for suffering and premature decay, is almays laid in infancy and childhood. Numerous articles have been forced to extensive sale pretending to answer these requirements—but none are superior and few equal to this preparation, which is manufactured by John Wyeth & Bro., of Philadelphia, to whom we are indebted for so many valuable and reliable pharmaceutical preparations. This firm, and their articles, are highly recommended to the profession by the American Pharmaceutical Association,—and the process of the manufacture of papoma in the different stages of preparation was exhibited by the late Prof. Edward Parrish to the members of the American Medical Association when it convened in Philadelphia, in 1872, and attracted very favorable attention, and was highly commended. This commendation is the best testimony that could be given, the Association being composed of the most eminent medical men in the United States. Children to whom I have administered papoma always have an easy digestion and an available supply of what their tissues and organs require for nourishment and growth. We all know that meat extracts and juices are very unsuitable for very young children and do not meet the requirements of the infant, upon whom they act as stimuli only. Papoma is strictly vegetable, and I ask in confidence the most thorough trial of it, assured it will make good all I have written concerning it. It is true we do not often need such a preparation, but when required it is sudden, and frequently unexpected—therefore the greater necessity for having in our minds the best and most reliable article of the kind. I often wonder how our ancient brethren in medicine, in the day of high civilization and great refinement, got along without some *food for infants*, as I have never seen any mention of any thing of the kind in reading the medical history of those times—yet, as we have seen, they spared neither time or money in furnishing themselves, even to the most ridiculous extreme.

Continental Medicine.

JAS. T. WHITTAKER.

THE RELATION BETWEEN GENERAL DISEASES AND EYE TROUBLES.—Prof. Foserter, of Breslau, has for the first time made the attempt to expose in its whole extent the relation between general diseases and affections of the eye, a subject hitherto but scantily considered in the text books on special pathology. The author's monograph on the subject (in the *Handbuch der Augenheilkunde, von Græfe Sæmisch*, VII, I, p, 59—233, 76), contains an ophthalmo-semiotic of the internal diseases, and a general etiology of eye diseases so far as they are dependent upon internal diseases.

I.—*Diseases of the respiratory and circulatory organs*, so far as they occasion morbid changes in the eye, are either propagations by continuity, as from the respiratory mucosa to the conjunctiva (conjunctivitis in catarrh, blenorrhea of the tear sacs, infrequently recurrent coryza), or are a consequence of venous congestion (extravasations in the sclerotic coat—whooping cough, after vomiting, after nocturnal epilepsy, etc). Recurrent retinal hemorrhages occur in emphysema, in hypertrophy of the left ventricle, in atherosis of arteries, also in fatty heart and progressive pernicious anæmia. In a case of general dilatation of the whole vascular system, Knapp saw a general dilatation of the vessels of the retina. Aneurism of the aorta, of the innominate, or of the carotid artery occasions dilatation of the pupil on the same side. In insufficiency of the aortic valves, Becker saw a more rapid pulsation in the retinal arteries. In endocarditis, valve lesions, etc., there occur, though not frequently, embolisms of the central artery of the retina, with complete blindness and characteristic ophthalmoscopic picture. Miliary tuberculosis of the choroid arises in wide spread acute miliary tuberculosis, but a negative condition, ophthalmoscopically, does not exclude the existence of miliary tuberculosis.

II. — *The relations between the digestive organs* and the eyes are based upon reflex processes, upon alterations in hematosis and plethora abdominalis. After severe vomiting, blindness has occurred, with white atrophy of the optic nerves. In plethora abdominalis the extent of accommodation is lessened; Kissingen, Karlsbad and Marienbad bring relief. Mydriasis is said to have resulted from worms in the intestinal canal Icterus is recognized in the sclerotic, and sometimes in icterus retinal hemorrhages are seen. In lienal leucæmia, the bottom of the eye is orange colored, the veins of the retina are dilated and rose red, but retinitis leucæmica is not a constant symptom of leucæmia.

III. — *The urinary organs* in their relations to the organs of sight call up Bright's disease especially. The œdema shows itself first in the lower eye-lids. In long continued albuminuria the power of accommodation is reduced. The ophthalmoscopic picture at the bottom of the eye often discloses kidney disease, especially the contracted kidney, which had been previously overlooked. Retinitis albuminurica also occurs in nephritis scarlatinosa, puerperalis and amyloid degeneration of the kidneys. Wagner found retinitis albuminurica ten times in one-hundred and fifty-seven cases of morbus Brightii. This retinitis is generally of bad prognostic significance for the life of the patient, with the exception of the puerperal and scarlatinous forms. It is entirely different in uræmic amaurosis, which always occurs suddenly with grave brain symptoms. The ophthalmoscope does not reveal the cause of the blindness which usually vanishes in twelve or twenty-four hours. In many cases there is reaction of the pupil to light, notwithstanding perfect blindness. There is justly doubt as to an iritis gonorrhoica. The recognition of the connection between iritis and gonorrheal arthritis is of value in treatment, (quinine, iodide of potassium).

IV.—*Disease of the sexual organs* shows morbid changes in the eye far more frequently in women than in men. In consequence of atrophy of the cell tissue (parametrium), rich in nerves, surrounding the uterus, there occurs reflex hyperæsthesia of the nervus quintus and opticus (Förster's kopiopia hysterica). Patients complain of weakness for close vision, pains of the most multiform variety and a certain dread of light. The objective examination of the eye furnishes no explanation for these complaints. The trouble is not curable; it is improved by castoreum and valerian, and only entirely disappears with complete involution. Morbus Basedowii is also dependent upon disease of the sexual organs. There is also a connection between neuro-retinitis, atrophia nervi optici and sexual diseases, but there is as yet no positive knowledge about it.

V.—*Diseases of the nervous system* show abundant lesions in the eye. The optic nerve and retina are parts of the brain; five cranial nerves pass to the eye, and the blood and lymph vessels of the brain are in the closest connection with those of the eye. The idea that hyperæmia of the brain could be surely recognized with the ophthalmoscope has not been confirmed. In cerebro-spinal meningitis there is conjunctivitis, œdema of the conjunctiva, exulcerating keratitis and especially (one to fifty-seven cases) iridochoroiditis. Meningitis may also give rise to transient or permanent amblyopia and amaurosis by participation of the optic nerves and chiasm. Chemosis and infiltration of the orbital cell tissue was likewise observed in acute meningitis. The increased intracranial pressure makes itself manifest also by neuritis optica or congested papilla. So far as tumor, inflammation, etc., is concerned, the changes in the eye do not definitely determine either the seat or nature of the disease, but are of great value in connection with other brain symptoms. The increase of pressure acts, according to Græfe, upon the sinus cavernosus and the central veins of the retina emptying into it; according to Manz, and Schwalbe, it acts upon the fluid pressure in the subvaginal space of the optic nerves which is in connection with the subdural space. Double sided congested papillæ is the most certain symptom of a permanent increase of intracranial pressure. An accurate knowledge of the topography of the field of sight at the bottom of the eye often gives valuable hints to the diagnosis of the seat of brain disease. The vertical line traversing the fixed point divides each field of vision into a smaller medial and a larger lateral half. The right half of each field of vision is supplied by the right optic tract; the left half by the left tract. A semi-decussation of nerve fibres takes place in the chiasm. But two conditions can arise: 1st, either the lateral half fails in each field when it is a question of medial hemiopia or lateral hemianopsia (hemopia is seeing half, hemianopsia is defect of half the field of vision in the eye); 2d, the right or left half fails in each field of vision (uniform hemiopia). Medial hemiopia develops itself gradually almost always. The line of demarcation is not sharp and may extend also upon the medial half of a field of vision. The question is then one of deposit at the anterior or posterior angle of the chiasm. Homonymous hemiopia is more frequent, originates suddenly, often with symptoms of cerebral apoplexy and, if the right halves of the fields of vision fail, aphasia may also be present. The line of demarcation is sharp and passes through the fixed point. The disease is permanent. Amaurosis partialis fugax (*flimmerscotom*) occurs with migraine in both eyes, with "sparks before the eyes," and the same defects laterally from the fixed point, subsiding in fifteen or twenty-five minutes. Very many brain diseases affect the muscles of the eye. The nucleus of the nerves of the eye muscles is in the floor of the fourth ventricle. The right anterior body of the corpora quadrigemina controls the movements of both eyes to the left side, the left the movements of both eyes to the right side. In apoplexies we observe the turning of both eyes, and of the head towards one side. If the effusion take place in one of the cerebral hemispheres, the movements of the eyes and head are towards the affected side. If the effusion take place in the isthmus encephali, the turning may take place towards the opposite side also, and may last a longer time. In partial sclerosis of the brain, there is initial diplopia, alternating paralysis of the nerves of the eye muscles, often nystagmus and also atrophia nervi optici. In deposits at the basis cranii, paralysis of the ocular nerves occur; especially characteristic are successive paralyses of two or three nerves, while multiple imperfect paralysis refers rather to disease in the brain substance. If paralysis of one half of the body be combined with complete oculomotor paralysis of the opposite side, the lesion lies on the side of the paralysis of the eye muscles, where the oculo-motor subtends the crus cerebri. Differences in the pupils are often observed in the insane—especially in the paralytic insane; change in the size of the pupils ("*springende mydriasis*)" is a valuable prodromal symptom. In psycopathies there is found atrophy, or neuritis or a negative condition. In tabes dorsalis, atrophy of the optic nerves is frequent; sometimes it is the initial symptom. Just as frequent also, especially at the start, are light and transient, but recurring and changing pareses of the eye muscles (diplopias); permanent paralyses are now rare. Myosis signifies an affection of the ciliospinal centre (in the region of the lower cervical and upper dorsal vertebræ). Irritation of the cervical sympathetic (by struma, etc.,) induces mydriasis, but paralysis (by lymphosarcoma, cancer etc.,) induces myosis. With these affections light ptosis is often present also, produced by paralysis of the smooth muscle fibres of the lids supplied by the sympathetic. There is also in the beginning redness of the affected side of the face, elevation of temperature, increased secretion of sweat and later atrophy of tissue. There is a hemicrania sympathico-tonica with contraction of the temporal artery, and a hemicrania angio-paralytica with dilatation of the retinal vessels and contraction of the pupils, monoparalytic ophthalmia depends upon affections of the trigeminus, herpes zoster ophthalmicus upon affections of the ganglion of Gasser. Light forms of chorea minor are introduced by spasmus nictitans. In the beginning of an epileptic attack there is dilatation of the pupils and pallor of the face. In symptomatic epilepsy the opththalmoscopic appearances depend upon the intracranial disease which causes it. In idiopathic epilepsy, contraction of the retinal arteries takes place during the attack, with venous hyperæmia.

VI.—*Skin Diseases.* Eczema and impetigo of the face produce, especially in scrofulous children, catarrh of the conjunctiva and keratitis superficialis. The development of cataract stands in relation to certain chronic exanthemata; erysipelas faciei may produce atrophy of the optic nerves with contraction of the arteria centralis, and also abscess of the lids.

VII.—*Gout and Rheumatism.* Three considerations attach to our obscure conception of rheumatism: First, an etiological, cold; second, a symptomatical, pain; third, an anatomical, the affection of the tendirious connective tissues. Rheumatism no longer plays any role in modern ophthalmology, but there is an iritis in connection with joint affections which must be regarded as rheumatic. Keratitis diffusa is also connected with joint diseases, but the congenital syphilitic cause of it must not be overlooked.

VIII.—*Infectious Diseases.* Measles shows an exquisite catarrh of the conjunctiva, which in the initial stage of the disease may be regarded as diagnostic. Temporary amauroses in this disease are rare, and permanent amauroses are still rarer, but chronic ophthalmias are frequent. Scarlatina is also attended with conjunctival catarrh, characterized by swelling. Transitory amaurosis in scarlatina, without discoverable lesion, depend upon albuminuria. These amauroses have already been designated as crypturæmic, retinitis albuminurica. Often scarlatina has a tolerably favorable prognosis. Caries of the temporal bone (mastoid precess), paralysis of the facial, lagophthalmus and ulceration of the cornea may follow scarlatina. Small-pox occasioned in France in the beginning of this century 35 per cent. of cases of blindness, after the introduction of vaccination only .7 per cent. The conjunctiva always suffers in small-pox from catarrh and swelling; hemorrhage in the swollen conjunctiva is characteristic of the hemorrhagic form of the disease. Diphtheria of the conjunctiva was observed in Berlin. Pustules form on the edges of the lids and also upon the conjunctiva. Abscesses of the cornea and iritis are sequelæ of the variolous erruption. Abscess of the cornea and paralysis of the muscles are very rare after typhoid fever, but transitory amauroses, without lesion, are more frequent in childhood; the permanent atrophy of the optic nerve, in some cases is obscure. After febris recurrens, choroiditis develops, or cyclitis, oriritis, which becomes *chronic* but very seldom leads to loss of the eye. Some weeks after diphtheria there arises quite frequently a paralysis of accommodation marked by an inability to read without convex glasses. This paralysis was formerly mistaken for an amblyopia. The pupils are usually not implicated, nor are the other eye muscles, and the prognosis is always favorable. Intermittent fever is attended with typical neuralgia, especially of the supra-orbital nerve. Cholera shows lagophthalmus and diminished secretion of tears, injection of the conjunctiva bulbi, drying of the lower segment of the cornea and as a fatal sign, black points on the sclera. The retinal vessels are small and the blood column is occasionally interrupted in the veins. In trichinosis, the skin of the eyelids and conjunctiva participates in the œdema, but muscle affections are rare. With sinus thrombosis there is milateral or bilateral protrusion of the cornea with œdema and amaurosis. With meningitis suppurativa, a similar condition without amaurosis. In pyæmia, suppurative choroiditis occasionally develops, the prognosis being always unfavorable to the eye affected, as it terminates in perforation or directly in atrophy. The most frequent point of departure in pyæmia, is from the female genital organs. In a case of endocarditis, occlusion of the retinal vessels by detached emboli has been demonstrated. Retinitis septica with white spots and extravasations has only been recognized anatomically in grave cases of traumatic fever. Syphilis attacks nearly every part of the eye. Of 7898 cases of eye disease treated by Coccius, 11 per cent. were luetic. The affection is mostly binocular, the iris being frequently, the retina seldom attacked. Ulcers upon the edges of the lids and gummata of the conjunctiva develop in this disease. Keratitis punctata and diffusa are often dependent upon lues either congenital, or acquired. Iritis is syphilitic in 50 per cent. of cases; there is a simple and also, though more rare, a gummatous form. In diffuse choroiditis, the retina is always affected. Optic neuritis, or white atrophy, is more rare; amblyopia without lesion, is also observed. As to whether mercurial treatment is to be successful or not, everything depends of course upon the certainty of the diagnosis, especially when grave brain symptoms are likewise present. Paralysis of the eye muscles is not seldom luetic. Optic neuritis and atrophy arise in consequence of lead poisoning.

Chronic nicotin poisoning produces amblyopia with central scotoma, especially for red (also contraction of the pupils). Chronic alcoholism, which induces a similar atrophy, may lead to atrophy of the optic nerves. Poisoning with belladonna, stramonium, or hyoscyamus, produces dilatation of the pupils; poisoning with morphia, contraction ; chloral, asthenopia. Under toxic doses of morphia and choral, diplopia is also observed. Quinine poisoning leads to amblyopia, santonine to yellow vision. Milzbrand often localizes itself to the eyelids, likewise glanders, which may also affect the tissues of the orbit.

IX.—*Diseases of Nutrition.* Scrofulosis causes blepharitis, conjunctivitis, phlyctenulæ, and superficial keratitis. In diabetes, disturbances of vision are frequent, especially loss or lessening of the power of accommodation, cataract, opacity of the lens, retinitis with hemorrhages and white deposits, atrophy of the optic nerves and amblyopia without lesion.

NOTE.—Want of space compels us to crowd over to the next number several further contributions from Continental Medicine.

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Correspondence.

London, O., June 27, '77.

Editors of the Cincinnati Lancet and Observer:

Gentlemen: In the course of a few microscopical investigations, rather outside the 'golden fencing' of the medical sciences, I made a few discoveries; and one of them, unimportant but interesting, perhaps, I desire to call your attention to: Has it ever been observed that in the case of the common blue (bottle) fly, the eggs, which every one knows will hatch in an astonishingly short time, containing at the time of, and previous to, their discharge, a living *fœtus?* Such at least, was the conclusion arrived at by myself, upon examining microscopically a few eggs, extracted from the mangled remains of a defunct fly; (death by violence and *rigor mortis* well marked.) A very minute and peculiarly shaped creature was seen to be floating or rather squirming in a semi-transparent, thick fluid, which completely filled the small egg capsule and surrounded the undeveloped insect on all sides; I judged the 'baby blue bottle' occupied about one-fifth the space of the interior of the egg. If this has been previously discovered, and very likely it has, you will please consign this to the mysterious and unknown labyrinths of the editorial waste basket and let it to memory be lost; but if the observation has not been made before, and you think it might interest any of your many readers to know of it, I will be pleased to see you make mention of it. Any amount of theoretical points might be drawn from that single fact, that the egg of the "blowing" fly is partially hatched before being discharged. But these same theories, founded upon the peculiarity of this partial fœtal development, being deficient in practical importance, it were useless to occupy valuable space in dilating further upon the subject. Respectfully,

CLIFTON S. MORSE,
Medical Student.

TO THE CINCINNATI LANCET AND OBSERVER:

[*]"Ingluvin" in Cases of Diarrhœa and Cholera Infantum and Marasmus.

The prevalence of cholera infantum, cholera morbus, and diarrhœa, to a considerable extent at this period, induces me to call the attention of the medical fraternity to the lately introduced remedy called "INGLUVIN". I have been using it in my practice with very happy results. We find indigestion generally at the bottom of bowel complaints, which Ingluvin will almost instantly correct. I give it in the following formula for adults:

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[*] Kind of Pepsin prepared from chicken-gizzard by William R. Warner & Co., Phila.

℞	Ingluvin,	ʒj.	
	Morphia sulph.,	grs. jss.	M.
	Ft. cht. No. xii.		

Sig.—One every 4 to 6 hours.

℞	Aqua calcis,	℥ijss.	
	Spts. lavander, comp.,	℥ss.	
	Syr. rhei, arom.,	ʒvi.	
	Tr. opii,	ʒss.	M.

Sig.—Desert-spoonful every 2-4 hours or after each evacuation.

Infant formula:

℞	Ingluvin,	grs. xii.	
	Sacch. lac.,	grs. x.	M.
	Ft. cht. No. x.		

Sig.—One every 4 hours.

℞	Aqua calcis,	℥ij.	
	Spts. lavander, comp.		
	Syr. rhei, arom.,	aa ʒj.	
	Tr. opii,	grs. x.	M.

Sig. – A teaspoonful every 2—4 hours.

In inflammatory affections combine *Ingluvin* with subnitrate of bismuth, equal parts, and oleaginous mixture with ol. terebinth instead of aqua calcis. Should the evacuations be suddenly arrested, and tympanitis and colic supervene, follow with a dose of oil or magnesia, or injections. I have treated a case of marasmus successfully with the Ingluvin— see article contributed February 3d, "Med. & Surg. Reporter."

A. F. SHELLY, M. D.

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Editorial.

CHANGES IN THE CINCINNATI COLLEGE OF MEDICINE AND SURGERY.

This institution has abolished its regular spring session, and will hold in the future only one session, viz.:—the winter session. The fees have been advanced, and are now the same as those of other schools of the city.

The vacancy in the chair of opthalmology has been filled by the appointment of Dr. Jos. Aub, one of the oculists of the Cincinnati Hospital.

The school has been continually under a cloud from the fact that two graduating sessions were held in each year, a custom discountenanced by the first colleges of the country. We are glad to know that the faculty has rid the school of this objection.

The appointment of Dr. Aub is one which will meet the universal approbation of the profession, as this gentleman stands high in his specialty.

Reviews and Notices.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. von Ziemssen, Prof. of Clinical Medicine in Munich, Bavaria. Vol. XII. *Diseases of the Brain and its Membranes.* By Prof. H. Nothnagel, of Jena; Prof. E. Hitzig, of Zürich; Prof. F. Obernier, of Bonn; Prof. O. Heubner, of Leipzig; and Prof. G. Huguenin, of Zürich. Albert H. Buck, M. D., New York, Editor of American Edition. New York: William Wood, & Co. For sale by Robert Clarke & Co.

The first chapter of this volume treats of Anæmia, Hyperæmia, Hemorrhage, Thrombosis, and Embolism of the Brain, and is by Prof. Nothnagel.

We are glad to note that the author, in the beginning of the chapter, gives credit to Marshall Hall "of having been the first to formulate anew more scientific notions about cerebral anæmia, through his investigations upon the effects of bleeding," and to Abercrombie "for the adoption of the correct view of syncope and apoplexia ex inanitione." The ignoring of English, French and American authorities by nearly all the writers in this great work has certainly lessened its value to a very great degree.

Prof. Nothnagel has done himself credit in the very complete chapters in this volume, of which he is the author, by recognizing the abundant labors of men of other nationalities than Germany. Science is not limited by geographical lines.

The course of treatment laid down by the distinguished author for anæmia and hyperæmia of the brain commends itself as eminently practical and suited to the demands of the general practitioner, and yet we find in it nothing that is not familiar in every day practice. In anæmia is urged the importance of giving the body such a position as will favor as much as possible the flow of arterial blood to the brain; if the symptoms are persistent and severe, smart irritation of the skin by sprinkling the face with cold water, or by the metalic electric brush, accompanied by the use of agents which act on the nerves, as the preparations of ammonia. If the pulse is much enfeebled, direct stimulants for the heart are to be used, as coffee, alcohol, or ether. As a dernier resort in prolonged anaemia from loss of blood, transfusion should be tried, with careful and thorough warming of the body. These means to be followed by the use of wine, soup, milk, etc.

In attacks of hyperæmia, the patient must lie with the upper part of the body raised, with arms stretched upwards, making no movements, and only when the severe symptoms are present would he recommend a resort to the lancet.

In discussing the subject of cerebral hemorrhage, he says, two conditions are universally recognized at the present day, as being among the most important of the predisposing causes: 1. Increase of blood tension, especially in the vessels of the arterial system. 2. Disease of the walls of the vessels themselves. The latter he regards as the most important cause.

The author says: "With few exceptions the paralysis following cerebral hemorrhage is unilateral, and affects the side of the body opposite to that in which the lesion on the brain occurred. The localization of lesions of the brain from hæmorrhage is treated of at length and with minuteness. Altogether the chapter is very satisfactory. The chapter on tumors of the brain is by Prof. Obernier. In noting the influences which give rise to tumors of the brain, he says: "There is no doubt that cerebral tumors occur more frequently in men than in women; and that of all cerebral tumors the tubercular is the most frequent." In describing the disturbances of the physical functions he says: "*Aphasia* is constantly present when a tumor is situated on the left side in the region of the Island of Reil, and extends as far as the second or third frontal convolution." The author has enhanced the interest of this chapter by a series of clinical reports of cases affected by various kinds of cerebral tumors. The chapter on syphilis of the brain and nervous system is by Prof. Heubner. That on acute and chronic inflammations of the brain and its membranes, by Prof. Huguenin, is very complete. The chapter on hypertrophy and atrophy of the brain is by Prof. Hitzig. This is one of the most valuable volumes in the series.

Myelitis of the Anterior Horns, or Spinal Paralysis of the Adult and Child. By E. C. Sequin, M. D., Clinical Professor of Diseases of the Mind and Nervous System in the College of Physicians and Surgeons, New York.

This little volume of one-hundred and twenty pages is a very clear and valuable contribution to our knowledge of cerebro-spinal disease. The distinctive and most valuable feature of Sequin's book consists in a valuable array of facts well stated, and in the manner in which he points out the differential diagnosis of the changes in the anterior horns of the cord from other spinal diseases.

A considerable part of the work is occupied in detailing the symptoms of 45 cases, which in another chapter are studied analytically, from which most distinct and valuable conclusions are drawn. The principle changes in the anterior horns, according to our authors investigations, are mainly limited to atrophy of the ganglion cells. The three last chapters are devoted to the etiology, treatment, and prognosis.

This will be found a very valuable work to every practitioner and student of cerebro-spinal diseases.

Therapeutic use of Faradaic and Galvanic Currents in the Eelectro-Thermal Bath, with History of Case. By Justin Hayes, M. D.

This is a monograph of 112 pages, in which the author sets forth the claims of the electro-thermal bath as an auxiliary in the treatment of articular rheumatism, gout, sciatica, locomota ataxia, etc., etc., but especially in the treatment of diseases of the uterus and its associate organs.

We have numerous works on the uses of dry electricity, but excepting the work of Dr. Schaveig, we know of no work on its uses in the bath. Dr. Hayes does not regard the electric bath as a universal panacea, but he confidently urges its use as an auxiliary in the treatment of disease. The method of preparing and using the bath is carefully described; he also mentions the condition in which it is most beneficial, and details a number of cases showing the results he has obtained.

As this is certainly a convenient method of using electricity while its effects are prompt and certain, we think that it may, in many cases, prove superior to the ordinary methods of electrization.

Columbus, O., July 19, 1877.

In consequence of absence from home and other reasons, the REVIEW OF NERVOUS DISORDERS AND INSANITY has been suspended, but with the next number will be resumed and continued regularly. There has been no period in the history of medicine that so much interesting and new material in these subjects has been produced as in the past few months. We will endeavor to present as full a synopsis of it as space will permit, after having completed the review begun in the April number.

D. A. MORSE, M. D.
Columbus Hospital for the Insane.

AMERICAN PUBLIC HEALTH ASSOCIATION.

New York, July 11, 1877.

In anticipation of the Fifth Annual Meeting of the American Public Health Association, which convenes at Chicago, Sept. 23d–25th, the Executive Committee submits the following outline to indicate the topics upon which the leading discussions will be opened at that session.

Please communicate to the undersigned at your earliest convenience, the title of the contribution you will offer upon any of these or other topics. If practicable, please state under your title-heading, the chief points to which your paper or discussion will relate.

All of the titles and points announced, under the three general heads here given, will be published in a circular to be issued early in August.

Your attendance and contribution at the Chicago meeting are cordially invited by the Executive Committee.

Respectfully yours,
ELISHA HARRIS, M. D., *Secretary.*

AMERICAN PUBLIC HEALTH ASSOCIATION, 1877.

FIFTH ANNUAL MEETING, CHICAGO, Sept. 23d–25th.

The American Public Health Association will convene in Chicago, Tuesday, September 23d, 1877, in accordance with the adjournment of the previous Annual Meeting.

NOTE.—The Executive Committee has recommended that, for this meeting, the leading discussions shall be arranged under the following Divisions of Subjects:

I. Sanitary Topography and the Systematic Drainage and Sewerage of Cities and Villages.—Other Problems of Public Health.

II. Sanitary Control and Extermination of the Contagia of Typhoid (Enteric) Fever, Scarlatina, Small-pox, etc.—Other Problems of Domestic Health.

III. Expert Testimony and the Pursuit of Exact Scientific Researches in Public Health Service.

Under these three general divisions, contributions are already promised upon the following topics, and, upon several of them, there will be discussions and written statements from original observation and experience:—

1. Discourse, by the President of the Association, on the Sanitary Topography of Chicago, and the Artificial Remedies of Natural Disadvantages.

2. Report on the Proposed Sanitary Survey of the United States.

3. A Paper on Problems old and new in the Sanitary Drainage and Sewerage of Chicago and other Western Cities.

4. A Paper on the Sanitary Geography of Phthisis Pulmonalis and other Pulmonary Diseases.

5. Statement and Discussion of the Problems of Sanitary Inspection, Safe-keeping and Transportation of Food Supplies,—Animal and Vegetable.

6. Discourse on the Sanitary Lessons of the Great Fire in Chicago.

7. A Paper on "Stamping Out" Scarlatina and the Extinguishing of Zymotic Disease.

8. A Paper on Sanitary Observations and Preventive Measures in regard to Diphtheria.

9. A Review of the Teachings of 22 years' records of Mortality from Croup, Diphtheria and Scarlatina in a city.

10. A Paper on the Miasmata of Dwellings and Dwelling-grounds.

11. A Paper on Family Health and the Relations of Hereditary, Habit and Hygiene to it.

12. A Paper on the Entailments of Ebriety in Individuals and Families.

13. Report on a Practicable Method for securing Complete and Authentic Records of the Causes of Death throughout the United States.

14. Suggestions respecting the Sources and Propagation of Trichina, considered with reference to Sanitary Measures.

15. Suggestions for the better Hygienic Care of Sailors and other Watermen, upon the Coastwise and Inland Waters.

16. Sanitary Safety in Railway Traveling. — Facts in the interest of Travelers and of Carriers.

17. Report and Discussion on Expert Testimony.

18. A Paper on Hygiene in the Prevention of Insanity.

19. Statement and Discussion on the Sanitary and Economical Importance of the best Surgical and Medical Treatment of the Needy Poor.

20. A Paper on the Tests and Supervision of Milk-supplies of large cities.

21. A Paper on Health in Education, as viewed in each Grade of the Schools.

22. Report on Enteric (Typhoid) Fever as observed in Western Vermont.

23. Preliminary Outlines of the new points of Enumeration and Inquiry which the interests of the Public Health require in the TENTH NATIONAL CENSUS.

24. Report on Available Methods of Promulgating Sanitary Knowledge and Authorized Information in regard to Vital Statistics and Prevalent Diseases.

25. Discourse on the Judicial and other Aids of Law in Public Health Service.—A practical view of the question.

26. Discourse on the Present State of Exact Knowledge of the Causation and Prevention of Destructive Diseases which most harm mankind.

33 Rue Caumartia, Paris, October 15, 1871.

To Messrs. W. R. Warner and Co., Philadelphia, Pa.:

Dear Sir:—The sugar-coated pills and granules which you presented through me to the medical department of the Egyptian Army, proved a most acceptable donation to the Government and gave great satisfaction to those by whom they were dispensed. Portable, undestructible and yet most potent in their operation, they were easily and safely carried throughout every portion of Northern and Equatorial Africa, and were doubtless the means of saving many valuable lives which would otherwise have been sacrificed to the pernicious influences of that pestilential country.

Permit me, therefore, in behalf of the Government with which I was then connected and especially of the Department over which I had the honor to preside, to thank you for this splendid *(the entire Vienna Exhibit)* donation and to assure you that it was gratefully received and duly appreciated.

I have the honor to subscribe myself with great respect,

Your Obedient Servant,

EDWARD WARREN (Bey) M. D.,
Late Surgeon-in-Chief of the Egyptian Army.

THE AMERICAN ASSOCIATION for the cure of Inebriates will hold its eighth annual meeting at Chicago, Ill., Sept. 12th, 1877. Important papers will be read, and business transacted, etc.

T. D. CROTHERS, M. D., Secretary.

By request of Prof. Bartholow, we publish the following card which appeared in THE CLINIC, July, 28th :

The Claim of Dr. Z. Collins McElroy to priority in the Invention of a Certain Classification of Remedial Agents.

A CARD.

I have known for several years past that Dr. Z. Collins McElroy, of Zanesville, Ohio, claims to have been the first to propose a system of classification used by me for a number of years in my lectures on Materia Medica and Therapeutics, and subsequently in my treatise on the same subject, published recently by D. Appleton & Co. Since my book appeared, it is understood that Dr. McElroy has spoken of me in terms far from complimentary, because I have not referred to him in any way in connection with the subject of *his* classification. These accusations of Dr. McElroy were of such a nature, and put forth in such a form, as to give me no opportunity for defense if I proposed to make any. In a recent publication (" *What Medicine offers for the Relief of Common Drunkeness*"—The Cincinnati Lancet and Observer, July, 1877), Dr. McElroy puts his charge into definite shape, and states his case, as he has heretofore done in private, with a calm assurance, which must carry conviction to the minds of those who are unacquainted with the facts. I have reason to belive that many medical men, even amongst those whom I regard as friends, think that I have appropriated Dr. McElroy's work without acknowldgement. As the case stands now, I must deny or admit the charge, which is contained in the following paragraph: " Prof. Bartholow, of Cincinnati, in his late work on Materia Medica, classifies certain medicines and remedial measures as 'used to promote constructive metamorphosis,' and 'those used to promote destructive metamorphosis,' a portion of the classification I made and published ten years ago; and in the exact language I used. He now claims originality for them, though I sent him a copy of my monograph at the time of its publication! Realizing after ten years the truthfulness of my classification, I rejoice at their adoption by the profession, though I think Prof. Bartholow would have lost nothing by giving proper credit."

Dr. McElroy is quite correct in saying that he sent me a copy of his "monograph;" but he omits a material point in this history. In a courteous note, thanking the author for sending me a copy of his pamphlet, I advised Dr. McElroy not to claim the priority for his system of classification, because he had been anticipated! The doctor is in error in stating that I "claim originality for them (*sic*)." To claim the invention of my scheme of classificatinn, would have been not only dishonest, but futile—for one of the most widely read books on clinical medicine contains the essential points. Indeed, any classification must be made up now, chiefly of knowledge that is common to all works on the subject, so that when any author speaks of "my classification," he means merely the particular arrangement which he has adopted for his own book.

The classification which Dr. McElroy accuses me of having appropriated without acknowledgement, was "made and published ten years ago" by him. The year of this invention or discovery was therefore 1867. I am thus particular in fixing the dates, and from Dr. McElroy's own data, so that there may be no doubt remaining when the question of priority comes up for final adjustment. When on receiving the "monograph," I wrote to Dr. McElroy saying that his classification was no novelty, I had before me that rather unequal, but eminently suggestive book,—"The Renewal of Life"—a collection of clinical lectures, by Thomas King Chambers, Physician to St. Mary's Hospital. In alluding to the popularity of the work on this side of the Atlantic, the publishers—Messrs. Lindsay & Blakiston—say that they have thought "it advisable to retain, in part, the title of the two former editions, that the work could at once be recognized, its great popularity and extensive sale being under its original title." These lectures were indeed in everybody's hands and were freely quoted in medical journals. The edition from which I quote, is the second American, 1865. If Dr. McElroy will take down his copy—edition doubtless the same as mine—he will find on page 42, Lecture II, "On Disease and Cure," delivered at St. Mary's Hospital October 5th, 1863. If he will now turn to page 56, he can read the following:

"Since there are two parts in the chain of life, 'construction' and 'destruction,' and since external agencies may act on these in two ways, by increasing them, or diminishing them, a primary fourfold classification of curative agents naturally arises. . . . We have—

"1. *Constructives*, or aids to formative nutrition.

"2. *Destructives*, or augmenters of destructive assimilation.

"3. Arresters of construction.

"4. Arresters of destruction."

We may omit from consideration divisions 3 and 4, because there is no question in regard to them. In my *schema* of classification, I have two groups which correspond to 1 and 2 of Chambers:

"Those used to promote constructive metamorphosis;

"Those used to promote destructive metamorphosis."

Although the terms in which these groups are defined, differ from those employed by Chambers, the idea, or principle stated, is precisely the same. In various parts of the volume, however, Chambers employs the same phrases, identically, as those employed by Dr. McElroy, and by myself: instead of aids to formative nutrition — promoters or augmenters of constructive metamorphosis; instead of augmenters of destructive assimilation—promoters or augmenters of destructive metamorphosis.

Page 59: "Increasers of absorption are purely constructive medicines, provided that they are not *increasers of destructive metamorphosis*, at the same time."

Page 64: "I there classed it [alcohol] as an anæsthetic, whose primary action is on the nervous system, and attributed to that action its effect in *staying destructive metamorphosis.*"

Page 210: "You will observe that the medicinal treatment is a union destruction and construction. . . The mercury causes a general increase of metamorphosis."

Page 600: "This change is not merely a general *augmentation of the destructive metamorphosis* of the body."

Page 602: "The effect of continued small doses of alcohol is to *diminish vital metamorphosis.*"

I might multiply examples indefinitely to show that Dr. Chambers used the terms subsequently employed by Dr. McElroy and myself, very frequently. To promote constructive metamorphosis, and to arrest destructive metamorphosis, were the leading ideas of his therapeutical system.

Dr. Chambers' work, "The Renewal of Life," was published in London by John Churchill, in 1862. In succeeding editions he added new lectures. If Dr. McElroy will now turn to Vol. 45 of *The American Journal of Medical Sciences*, April, 1863, p. 387, he will find a full review of Dr. Chambers' book. On page 388, the classification is given, and the following quotation is inserted:

"Or, by the judicious use of destructives and arresters of metamorphosis, we in some cases make room for, and in others allow time for the normal growth of the tissues, and thus are acting up to our principles in making our prime object the renewal of life."

The reviewer quotes another paragraph, from which I take a single sentence:

"Mercury distances all the contents of our Pharmacopœia in the power of hastening destructive metamorphosis."

"The Renewal of Life" was reprinted in this country by Lindsay & Blakiston in 1865, as I have shown already. Thus, the therapeutical system of Chambers has been before the American medical profession since 1863. Dr. McElroy does not pretend to claim anything previous to 1867, the year in which he formulated his views, and put forth *his* classification—*fac simile* of that advocated five years before by Chambers. I was perfectly familiar with these facts when I advised Dr. McElroy not to claim that his arrangement was original. If he had asked me then to point out to him the work or works in which such a classification is to be found, he might have spared himself the mortification of claiming and wearing an honor not belonging to him. He would have been spared, also, the still keener mortification of having pursued me year after year with groundless charges.

Although it is perfectly certain that Chambers' therapeutical notions were well known in this country prior to 1867, and that agents promoting constructive and destructive metamorphosis were freely discussed in the medical journals, yet I do not accuse Dr. McElroy of having appropriated the labor of others in constructing *his* classification. It is quite possible that he may have arrived at his results independently. Moreover, it not unfrequently happens that an omniverous reader quite unconsciously uses the ideas, the very language indeed, of an author, without intending a plagiarism, and having, it may be, a ready and superior power of expression. So Dr. McElroy, we may suppose, without of course affirming the truth of the supposition, may have read the "Renewal of Life," and cogitating some years after on the problems of therapeutics, may have had revived in his mind by the process of unconscious cerebration, the very ideas and phrases of Chambers without being conscious of their source.

Finally, it may be required of me to explain why I have made no mention of Chambers, the author of a system of classification the same as my own, as respects two divisions of the subject. No single individual has the right to claim the discovery that remedial agents affect the processes of waste and repair; or, as it is in our day the fashion to say, the constructive or destructive metamorphosis. When I say that some remedies promote constructive metamorphosis, and others promote destructive metamorphosis, I use phrases which are as much common property as the term "alteratives." So far as I know, no one claims the prescriptive right to use these terms except Dr. McElroy. He is gratified to find that after ten years they are adopted by the profession. He appears not to know that they had been adopted by the profession several years before he discovered them and took his patent.

ROBERTS BARTHOLOW.

Obituary.

T. A. COLTER, M. D.

At the meeting of the Academy of Medicine, held July 16th, 1877, the following resolutions were adopted:

Resolved, That the Academy of Medicine, in the death of Dr. T. A. Colter, has lost one of its best and most faithful members.

Resolved, That we as a body deplore his untimely death, being so suddenly deprived of a bright future in his chosen profession.

Resolved, That we sympathize with his family and relatives in their great loss and bereavement.

Resolved, That a copy of these resolutions be inserted in the Medical Journals of this city, and a copy be sent to the family of the deceased.

L. J. FOGEL, M. D.
JAS. C. MCMECHAN, M. D. } Committee.
F. LANGENBECK, M. D.

ALPHEUS B. CROSBY, Professor of Surgery at Dartmouth, and Professor of Anatomy at the Bellevue Hospital, New York, died at Hanover, N. H., August 9th, after an illness of two days.

DR. D. PEDRO MATA.

Spain has lost one of its most famous physicians, Dr. D. Pedro Mata. "*La Andalucia Medica,*" of June, contains the following editorial note:

"Native medicine lost by death, on the afternoon of May 28th, one of those more eminent and more distinguished men who from time to time appear in our cities to break down worthless scientific, moral and political traditions, regenerate liberty with new life, and advance social and intellectual order.

Our poor pen is not called upon to write the eulogy of such an eminent genius; that duty devolves upon a more priveleged intellect, who, knowing the human heart, will be able to sound with a delicate touch the uttermost and deepest depths of our thoughts. We confine ourselves alone to rendering above his cold tomb the homage of love and respect for reasons our patrons know.

By the death of Dr. Mata, medical literature loses one of its most illustrious geniuses; philosophy an indefatigable apostle of progress and of truth; the country one of its best children; humanity a champion warrior of civilization and of liberty.

Let us mourn the irreparable loss, and seek to console and mollify our grief for the inexorable fate that has cut the thread of his existence, carried off from the world of erring beings; his exalted talent, will immortalize and keep him living in the hearts of generations yet to come.

This journal sympathizes in this general feeling over the loss of this eminent man, who has obtained as a reward for his good deeds a heavenly home." T. C. M.

We regret to announce the death of DR. D. H. JESSUP, of Covington, Ky.

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NOTE.—Proceedings of the profession will appear in the next number.

THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

Vol. XX.—SEPTEMBER, 1877.—No. 9.

Original Communications.

Article 1.—A System of Chemical Testing.—For Medical and General Use.

By J. B. HOUGH, M. D.,

Professor of Chemistry and Toxicology in The Miami Medical College of Cincinnati.

INTRODUCTION.

The operations of Practical Chemistry are of several general classes:

ELEMENTARY DEMONSTRATIONS.—These are usually made by the teacher for the purpose of illustrating the general principles of Chemistry.

DEPORTMENTS.—These are special experiments or "tests," that should always be made by the student for the purpose of acquainting himself practically with the chemical properities of the bodies under observation, that is, with their behavior under the action of reagents. They should *always* be used also as "confirmations" of the results of the next class of operations.

QUALITATIVE ANALYSIS.—This is a systematic process or classified series of processes by which the nature of unknown bodies may be ascertained. It answers the question: "*What is* the body under observation?" While *Deportments* answer the question, "How do such and such bodies behave?" qualitative analysis inquires, "What bodies behave so and so?" The latter class of processes therefore depends upon the former, and cannot be properly pursued without the knowledge that a previous study of deportments furnishes. For this reason beginners are particularly warned against the difficulties and discouragements sure to follow an attempt to make analysis the starting point.

QUANTITIVE ANALYSIS.—This is a special application of the foregoing, subjected to careful processes of weighing or measuring for the purpose of determining *how much* of the constituents of a compound or mixture may be present. It necessarily involves a sound knowledge of the preceeding classes of work. For a general outline of its processes the student is referred to *Fresenius' Quantitative Analysis.*

APPLIED CHEMISTRY, INDUSTRIAL CHEMISTRY, CHEMICAL TECHNOLOGY, etc, are divisions relating to the chemical arts, each of which has its own special methods; hence its departments are as numerous as the arts it represents.

PHARMACY is to a great extent a branch of this division.

MEDICAL AND PHYSIOLOGICAL CHEMISTRY are less intimately related to the arts.

ASSAYING, though industrial in its application is more properly a branch of Quantitive Analysis.

The highest class of chemical work is that devoted to *original research.* It necessarily presupposes a thorough familiarity with all the methods upon which its various processes are based. Carefully prosecuted upon this basis it is one of the parents of progress. Physical research is the other.

Before beginning the work of chemical testing, the following points should be observed:

A careless habit of reading and observing will be perfectly sure to lead to error, discouragement and loss of time.

Omissions or other disregard of directions will be followed by the same results.

Before making any test be sure to know three things: *What* you are to do, *how* you are to do it, and what result you are to look for.

Some tests require a considerable degree of practice or discretion, to make them respond satisfactorily. Repeat them until you are perfect master of all the conditions.

Aim to make your results perfect, easy, sure, well understood, and remembered. One test mastered in this way is worth more than a score carelessly done.

Cleanliness and *order* are absolutely essential. The first is one of the cardinal virtues; the latter is "Heaven's first law."

It is insisted upon as a matter of very great importance that, as soon as the work of qualitative analysis is begun, if not before, the student keep conveniently at hand a suitable note-book in which to record immediately each test and result, whether positive or negative, using for this purpose the signs, symbols and language used by chemists, as soon as he acquires the ability to do so. In taking notes of confirmatory tests (that is, deportments used as confirmations after the name of the body is supposed to have been found), there should be left sufficient space in which to record the *written reactions* at any convenient time *after* both base and acid have been found and fully confirmed.

There are *very few cases* in which it is safe to decide upon the presence of a base or acid before trying *all* the deportments of that body as confirmations. A single omission very frequently allows an error to remain concealed, which afterwards costs a great expense of time.

The student should habitually "read up" the subject upon which he is working. He should as much as possible have a *special object* in his reading, that is, he should read special subjects wherever he can find them, rather than special books for *what* he can find in them. Such reading should be done mostly outside of laboratory hours, so that the latter time can be devoted to experimental work. One hour daily devoted to actual experiment will furnish ample material for several hours of profitable reading that would otherwise make but transient and often false impressions.

Let it be understood that the System of Chemical Testing here presented is not offered as the best for all circumstances, but one that many years of experience have shown to be peculiarly suitable to those who have but little time to devote to the subject, and one that is in the main complete in itself, as well as profitably introductory to further advancement.

For the few articles of apparatus required and the reagents needed see 1, 257, 338, 366.

DEPORTMENTS.

IN THE WET WAY. (For dry tests see 258).

1. The following apparatus and reagents will be needed :

Apparatus :—

A few test-tubes, 8 or 10 in number, mostly small sizes ($\frac{1}{2}$ in. x 5 in.), with 2 or 3 large ones.

A rack for holding test-tubes, and sponge-stick for cleaning.

An alcohol lamp—or Bunsen burner if gas can be obtained. The latter should be of such construction that the flame may be made either luminous or nonluminous, and should have an extra tube flattened for blowpipe use.

A few inches of small platinum wire.

One or two square inches of platinum foil.

Some litmus paper.

One or two small evaporating dishes. (Berlin porcelain).

One or two small glass funnels, shaped to an angle of 60°.

A pint or quart bottle for distilled water. Most convenient if fitted up as a "wash-bottle."

A few pieces of glass tubing about $\frac{1}{4}$ in. external diameter. One or two pieces can be closed at the ends, by fusing, and used as stirring-rods.

A pair of convenient forceps or tongs for handling heated articles, such as platinum foil, dishes, etc.

A piece of blue (cobalt) glass two or three inches square; other colors are sometimes used but are scarcely necessary.

A lamp-stand with rings for holding evaporating dishes, funnels, etc.

A set of reagent bottles, 30 to 50 in number. Four-ounce is a convenient size. They should have close-fitting, large-topped glass stopples.

Lastly, a convenient work-table with shelves, of convenient height to *work while standing.*

Reagents:

The following—thirty in number—will be in frequent demand. *Pure* water must be used in making the solutions. The strengths given are suitable for most cases, but need not be rigidly followed in every instance. The bottles should be kept always in the same order. The following order will soon become convenient and habitual. It is the arrangement used in *Miami Chemical Laboratory.* They should be labeled with both name and symbolic formula.

The numbers denote the per centage strength. When no number is given the full strength is used:

Hydrochloric acid,	HCl.	10
Sulphydric “	H_2S.	
Sulphuric “	H_2SO_4.	10
Nitric “	HNO_3.	10
Ammonic hydrate,	NH_4HO.	5
Ammonic chloride,	NH_4Cl.	10
Ammonic sulphide,	$(NH_4)_2S$.	10
Ammonic carbonate,	$(NH_4)_2CO_3$.	10
Ammonic oxalate,	$(NH_4)_2C_2O_4$.	10
Sodic carbonate,	Na_2CO_3.	10
Potassic hydrate,	KHO.	10
Potassic iodide,	KI.	5
Potassic ferrocyanide,	K_4Cfy.	5
Potassic bichromate,	$K_2Cr_2O_7$.	5
Silver nitrate,	$AgNO_3$.	1
Lead acetate,	$Pb2C_2H_3O_2$.	5
Mercuric chloride,	$HgCl_2$.	5
Ferrous sulphate,	$FeSO_4$.	10
Ferric chloride,	Fe_2Cl_6.	5
Copper sulphate,	$CuSO_4$.	5
Calcic hydrate,	$Ca2HO$.	
Calcic chloride,	$CaCl_2$.	10

Calcic sulphate,	$CaSO_4$.	
Baric chloride,	$BaCl_2$.	5
Acetic acid,	$HC_2H_3O_2$.	"No. 8"
Potassic ferricyanide,	K_6Cfy_2.	2
Sodic phosphate,	Na_2HPO_4.	5
Oxalic acid,	$H_2C_2O_4$.	
Potassic sulphocyanate,	$KCyS$.	5
Sodic hypochlorite,	$NaClO$.	10

In addition to the above the following will be in occasional demand :

Strong sulphuric acid,	H_2SO_4.
Sulphurous acid,	H_2SO_3.
Tartaric acid,	$H_2C_4H_4O_6$.
Hydrofluosilicic acid,	$(HF)_2SiF_4$.
Magnesic sulphate,	$MgSO_4$.
Potash chlorate,	$KClO_3$.
Potash chromate,	K_2CrO_4.
Potash carbonate,	K_2CO_3.
Potash antimonate,	$KSbO_3$.
Mercurous nitrate,	$Hg_2 2NO_3$.
Baric hydrate,	$Ba2HO$.
Baric nitrate,	$Ba2NO_3$.
Strontic sulphate,	$SrSO_4$.
Ammonic molybdate,	$(NH_4)_2MoO_3$.
Platinic chloride,	$PtCl_4$.
Gold chloride,	$AuCl_4$.
Sodic acetate,	$NaC_2H_3O_2$.
Sodic hypochlorite,	$NaClO$.
Sodic sulphide,	Na_2S.
Sodic sulphite,	Na_2SO_3.
Stannous chloride,	$SnCl_2$.
Alcohol,	C_2H_6O.
Ether,	$(C_2H_5)_2O$.
Carbon bisulphide,	CS_2.
Granulated zinc.	
Copper foil and filings.	

Deportments in the wet way are best studied in two general classes, *bases* and *acids*. By the term base is meant any body that is capable of neutralizing an acid. It includes metals, metallic oxides and some other bodies (like ammonia, – NH_3) that have basic properties. The wet process may be used for such bodies as are soluble in water or acids.

Bases are usually studied in *five groups:*

Bases of the First Group.

This group includes those bodies, the chlorides of which are insoluble or nearly so in water, or very dilute hydrochloric acid. They are *silver*, *mercurous* compounds and *lead*. In solutions of any of these bases hydrochloric acid (HCl) produces a *precipitate* which is the *chloride* of the given base; hence HCl is the general *group reagent* of this group. In the following deportment exercises, the group reagent is the first one used.

2. *General Directions.*—Usually a test-tube will be found to be the most convenient thing in which to apply the tests. A *few drops* of the solution to be tested are placed in a small test-tube and the reagent carefully added, a drop or two at a time, until the prescribed quantity is used. It is not a matter of indifference how the manipulation is habitually performed. The following plan will be found very convenient and will save the time and trouble that would result from an awkward procedure: A right-handed person should hold the test-tube with the thumb and first and second finger of the left hand. This will leave him the remaining fingers for another important use. Take the reagent bottle from its place with the right hand, always keeping the label toward the base of the fingers; otherwise the label will very soon become defaced, if not destroyed. Remove the stopple with the free fingers of the left hand and, as soon as enough of the reagent has been added, return the stopple and bottle to their proper places. In this way no trouble or confusion can ever arise from misplaced stopples or bottles. It is frequently necessary to shake the contents of the test-tube. This may be done without spilling it or soiling the fingers, by holding it as before and striking it aside smartly at the lower end. It comports with both neatness and economy to use no more solution or reagent than is necessary to show the desired result. A *good* test-tube will bear heating suddenly in direct contact with the flame provided it be not heated above the level of the liquid. In heating thus it is best to keep it gently moving. Some liquids have a tendency to boil in a very

fitful or explosive way; this can generally be prevented by inclining the tube or by inserting a bit of platinum foil or wire.—Never use a dirty test-tube nor allow your reagents to become contaminated with each other or the substance under examination.—In observing color tests note the difference that often depends upon looking *at* or looking *through* the tube.—Beginners often find it difficult to decide whether or not a *precipitate* is present. A few precipitates are nearly transparent and are therefore not easily seen by any one, but in general, precipitates produce more or less opacity. It must not be supposed that precipitates necessarily sink to the bottom; some remain suspended or even float at the top. In the technical parlance of the laboratory a "precipitate" means a solid *formed* in a liquid in which it is insoluble. An unsuccessful attempt to dissolve a solid gives to the undissolved remainder the name of "*residue*." These two terms should always be used in their technical sense.—There is one slovenly sacrilege seen in almost every laboratory. It is the detestable destruction of books etc., by spilling acids and other chemicals upon them.

Silver.

Any soluble compound of silver may be used, *e. g.:* a solution of **silver nitrate** in distilled water.

3. **Hydrochloric acid** (**HCl**) produces a white precipitate which is **silver chloride**, (**$AgCl$**). Other soluble **chlorides** give the same precipitate. [In most cases reagents should be added *in excess*. This term does not necessarily mean in an excessive quantity but an amount sufficient to make the properties of the reagent predominate].

To a portion of the above precipitate while still moist, add an excess of **ammonia**, that is, enough to cause it to quickly turn reddened litmus paper or litmus solution blue; the precipitate should dissolve completely. Therefore if the original solution had been strongly alkaline by ammonia, the **HCl** would not have produced a permament precipitate unless it had been added *in excess*.

Another portion of the above precipitate (**$AgCl$**), placed in a strong light will soon become dark, by reduction, to **subchloride** (**Ag_2Cl**), and after a long time to **metallic silver**, (**Ag**).

If to a solution of **$AgCl$** in ammonia (**NH_5O**), an excess of some strong acid, such as nitric (HNO_3), be added, the AgCl will be reprecipitated.

4. Potassium hydrate (KHO), precipitates (brown) silver oxide, (Ag_2O).

5. Sodium hydrate (NaHO), does the same.

6. Ammonium hydrate (NH_5O), gives the same precipitate (Ag_2O), which is soluble in excess of the precipitant. [Some care should be observed in treating Ag_2O with ammonia, for if it remain long without dissolving it may be changed into a dangerously explosive compound, known as "fulminating silver," (NAg_3?) probably thus]:

$$3Ag_2O + 2NH_5O = 2NAg_3 + 5H_2O.$$

7. Sulphydric acid (H_2S), precipitates (black) silver sulphide, (Ag_2S).

8. Ammonic sulphide, $(NH_4)_2S$, and other soluble sulphides, have the same effect.

9. Potassic chromate or "bichromate" (K_2CrO_4 or $K_2Cr_2O_7$) precipitates (red-brown) silver chromate, (Ag_2CrO_4).

10. Soluble iodides (KI), precipitate (nearly white) silver iodide, (AgI).

Lead.

Any soluble compound, as the acetate or nitrate (dissolved in water) may be used.

11. In solutions not very dilute, HCl or any soluble chloride precipitates the white crystalline lead chloride, ($PbCl_2$), which is soluble in a large quantity of hot water.

12. H_2S precipitates (black) lead sulphide (PbS).

13. $(NH_4)_2S$ and other soluble sulphides do the same.

14. Sulphuric acid (H_2SO_4), or any soluble sulphate, precipitates (white) lead sulphate, ($PbSO_4$).

15. CO_2, "carbonic acid water" or any soluble carbonate, will precipitate lead carbonate, known as "white-lead," ($PbCO_3$).

16. Solution of a chromate or "bichromate" (K_2CrO_4 or $K_2Cr_2O_7$), throws down "chrome yellow." Lead chromate, ($PbCrO_4$).

17. Solution of an **iodide** (**KI**) gives (light yellow) **lead iodide** (**PbI_2**), somewhat soluble in hot water, from which it crystallizes in brilliant spangles in cooling.

Mercurous Compounds.

In these compounds each molecule is thought to contain more than one atom of mercury. **Mercurous nitrate** (**$Hg_2 2NO_3$**), or any soluble mercurous salt may be used, dissolved in water.

18. **HCl**, or any soluble **chloride** precipitates "**calomel,**" (white). **Mercurous chloride**, (**$Hg_2 Cl_2$**). [A large excess of **HCl**, aided by heat, gradually dissolves the precipitate, or rather a portion of it, leaving only a gray residue of **metallic mercury**]. The precipitate is blackened by **NH_4O**, or the fixed **alkalies**, [Conversion into **suboxide**, **Hg_2O**].

19. **H_2S**, and other soluble **sulphides** [**$(NH_4)_2S$**] precipitate (black) **mercurous sulphide**, (**Hg_2S**).

20. Soluble **iodides** (**KI**) give (dark green) **mercurous iodide**, (**Hg_2I_2**).

21. **Stannous chloride** (**$SnCl_2$**) separates (grey) **metallic mercury**, (**Hg**).

Compare carefully the above deportments of mercur*ous* compounds with those of mercur*ic* compounds in the next group.

BASES OF THE SECOND GROUP.

The first group is sometimes discarded, in which case its members are included in the second. The second group proper includes **Mercuric** compounds, **copper**, **tin**, **cadmium**, **bismuth**, **antimony**, **arsenic**, **gold** and **platinum**, besides several rarer metals. (See under 78). The group reagent is **sulphydric acid**, (**H_2S**). This reagent may be used either in its gaseous state or in solution in water. The latter is most convenient, and generally used. It is absolutely necessary that the solution be either fully saturated or *very strong*. When frequently opened it loses its strength in a few days and must be discarded or restored so as to smell *very strongly* of the gas. **H_2S** precipitates completely all the metals of this group whether the solution be neutral or acid.

Mercury,

In the form of mercur*ic* combination. Any such solution may be used,—as **mercuric chloride**, ($HgCl_2$).

Deportment 18, which responds for mercur*ous*, does *not* give a precipitate in mercur*ic* solutions.

22. H_2S added gradually, gives a precipitate which at first is light colored, but on further addition of the reagent becomes darker and finally black. Compare with 19. The black pr. is **mercuric sulphide**, (HgS). The lighter ones seem to be molecular compounds of HgS, with the original mercuric compound not yet decomposed.

23. $(NH_4)_2S$ and other soluble **sulphides**, produce similar changes.

24. Soluble **iodides** (KI), give, when proper proportions are used, a fine red pr. of **mercuric iodide**, (HgI_2). This pr. is soluble in excess of either the original solution or the precipitant. Least solution takes place if the proportions are according to the reaction:

$$HgCl_2 + 2KI = HgI_2 + 2KCl.$$

25. **Stannous chloride** ($SnCl_2$), added to mercuric chloride throws down first the white **mercurous chloride**, (Hg_2Cl_2) **calomel**, which by prolonged contact of excess of the **stannous salt** is eventually reduced to (grey) **metallic mercury**.

26. In solutions that are neutral or nearly so NH_5O gives "**white precipitate**," (NH_2HgCl). [The student is now advised to test both **mercurous** and **mercuric** compounds with other reagents, such as the fixed **alkalies**, **carbonates**, **bromides** etc., and note carefully the results].

Copper.

The **sulphate** ($CuSO_4$), or any cupric solution may be used. [Cupr*ous* compounds are insoluble in water].

27. H_2S, precipitates (black) **cupric sulphate**, (CuS).

28. $(NH_4)_2S$ and other soluble **sulphides**, do the same.

29. **Ammonia** (NH_5O), is a delicate and characteristic test for copper. When added in quantity *small enough*, it throws down

a nearly white pr. which is a **basic salt**. In larger quantity the pr. is bluish, while excess of NH_5O dissolves the pr. into a fine blue solution. With $CuSO_4$ in solution, some authorities give the following reactions:

$$2CuSO_4 + 2NH_5O = \underline{Cu_2O,SO_4} + (NH_4)_2SO_4 + H_2O.$$

$$CuSO_4 + 2NH_5O = \underline{Cu2HO} + (NH_4)_2SO_4.$$

$$2(Cu2HO) + (NH_4)_2SO_4 + 2NH_5O = [2(NH_2CuHO), (NH_4)_2SO_4] + 4H_2O.$$

As $Cu2HO$ dissolves in NH_5O to a blue solution, it is probable the blue color is **cuprammonic hydrate**, (NH_2CuHO).

30. The **fixed alkalies** (KHO and $NaHO$), precipitate (blue) **copper hydrate**, ($Cu2HO$).

31. Soluble **ferrocyanides** (K_4Cfy), throw down (red-brown) **copper ferrocyanide**, (Cu_2Cfy).

32. Soluble **phosphates**—as Na_2HPO_4—give (bluish or greenish white) **copper phosphate**, ($CuHPO_4$).

33. Sol. **arsenites** precipitate the beautiful green pigment, "**Paris green**" or "**Scheele's green**," ($CuHAsO_3$).

34. A piece of clean, bright **iron** or **steel** placed in the solution, is soon coated with **metallic copper**.

Tin.

Tin forms two general classes of compounds, the **stannous** and the **stannic**. The former are convertible into the latter by all direct or indirect oxydation processes. The **stannous** compounds are in fact so prone to this change that they act as powerful reducing agents. They are on this account difficult to preserve in the purely stannous condition. Tin salts are therefore apt to be mixtures of both kinds. Unsatisfactory tests will often be explained by keeping these facts in mind.

Stannous Combinations.

A sol. of **stannous chloride** ($SnCl_2$), may be used.

35. H_2S gives (dark) **stannous sulphide**, (SnS).

36. $(NH_4)_2S$ and other **sulphides** do the same.

37. Exposure of $SnCl_2$ to water or atmosphere, precipitates slowly an **oxychloride**, ($SnOCl_2$).

38. **Alkalies** and also their **carbonates** precipitate the **stannous hydrate**, ($Sn2HO$), which is soluble in excess of **KHO** or **NaHO**, but not in the **carbonates**, nor in NH_3O.

39. **Mercuric chloride**, ($HgCl_2$), added to **stannous** solutions, precipitates its mercury as **calomel**, (Hg_2Cl_2).

Stannic Compounds.

Stannic chloride ($SnCl_4$) may be used.

40. H_2S precipitates **stannic sulphide**, (SnS_2); *yellow* if the solution is *pure*, otherwise it is generally dark.

41. $(NH_4)_2S$ and other sol. sulphides give similar results.

42. **Alkalies** and **alkaline carbonates** precipitate an **oxyhydrate**, e. i: **stannic acid**, (H_2SnO_3).

Cadmium.

This metal and its compounds are but little used.—Its **chloride** ($CdCl_2$), may be used.

43. The reagents used for **tin** may be used, and the results compared.

Bismuth.

Any of its soluble salts may be used.—Prepare a solution as follows: Add to a few grains of one of its oxides or salts enough **HCl** to dissolve it. Then add as much water as it will bear without precipitation. If any precipitate is formed add just enough more **HCl** to clear it up. If an oxide has been used the solution will be **bismuth chloride**, ($BiCl_3$).

44. **Water** takes from **bismuth** salts more or less of their acid radical, and thereby precipitates a **basic salt**, the composition of which depends upon the *quantity* of water, as well as the compound of bismuth used. In some cases prolonged washing gives an almost pure **oxide** or its **hydrate**, (Bi_2O_3 or $Bi3HO$).

45. H_2S precipitates (black) **bismuth sulphide**, (Bi_2S_3).

46. Other soluble **sulphides** do the same.

47. **Alkalies** pr. the white **hydrate**, ($Bi3HO$).

48. **Alkaline carbonates** precipitate a **basic carbonate**, $(BiO)_2CO_3$.

49. **Potash "bi"-chromate**, ($K_2Cr_2O_7$) precipitates from neutral or *slightly* acid solutions a (yellow) **bismuth chromate**, having, as I have determined, a composition varying from the normal Bi_23CrO_4 to a **basic anhydrochromate**, $(BiO)_2CrO_7$—according to the conditions, because water removes more or less **chromic anhydride** (CrO_3), from the former, thus:

$$Bi_23CrO_4—CrO_3 = (BiO)_2Cr_2O_7.$$

Antimony.

A solution of the **chloride** will be suitable.—It may be prepared conveniently (along with **KCl**), by dissolving a few grains of **tartar-emetic** ($KO,Sb,C_4H_4O_6$) in a little **HCl**, and adding water in small portions, shaking after each addition, until a precipitate begins to form. The pr. is then cleared up with the smallest quantity of **HCl**. Observe its resemblance to **bismuth**.

Antimony forms two classes of compounds: antimon*ous* and antimon*ic*. From such solution as the above, which is

Antimonous.

50. **Water** precipitates (white) **antimonous oxychloride**, (**SbOCl**).

51. H_2S gives, in acid solutions, (orange) **antimonous sulphide**, (Sb_2S_3).

51, *a*.—**Alkalies** and **their carbonates** throw down, (from acid solutions free from tartaric acid and not very dilute), a bulky (white) pr., **antimonous oxide** (Sb_2O_3). [Test the solubility of this pr. in the several alkalies and their carbonates].

52. **Nascent hydrogen** decomposes compounds of antimony, forming **antimonous hydride**, (SbH_3). The experiment is performed by using the *Marsh-test apparatus* as described in paragraph 67. Observe carefully the different properties of the **antimony** and the **arsenic spots** or mirrors obtained in the two cases. All the tests directed for the latter should be applied to the former also. Antimon*ic* compounds are detected by the *Marsh test* in the same manner.

53. KI in solutions acid with HCl, gives a yellow color, but no precipitate. (See 58).

Antimonic Compounds.

[Solution of **antimonic chloride** ($SbCl_5$), in hydrochloric acid may be used, except for 57, for which use a recently-made sol. of "**granular potassic antimonate**, ($K_2HSb_2O_7$)].

54. **Water** precipitates (white) **metantimonic acid**, (H_4-Sb_2O_7).

55. H_2S throws down (orange) **antimonic sulphide**, (Sb_2S_5).

56. **Soluble sulphides** in general also precipitate Sb_2S_5, (mixed with S.), soluble in excess.

57. **Excess of sodic hydrate** or **carbonate** ($NaHO$ or Na_2CO_3), precipitates, from solutions of the acid **metantimonates**, (white) **hydro-sodic antimonate**, ($Na_2H_2Sb_2O_7$).

58. Soluble **iodides** set free a dark pr. of **iodine**, (see 53).

59. **Nascent hydrogen** (see 52 and 66) reduces antimon*ic* to antimon*ous* compounds, and then forms SbH_3, as in 52.

Arsenic.

This element forms two classes of compounds: arseni*ous* ($AsCl_3$ — KH_2AsO_3 **etc.**) and arsen*ic*, ($AsCl_5$ — K_2HAsO_4, **etc.**). Its **oxides**, (As_2O_3, and As_2O_5), when hydrated, form tolerably well-defined **acids**, (**arsenious** = H_3AsO_3, and **arsenic** = H_3AsO_4), which yield their corresponding salts (**arsenites** and **arsenates**) by union with bases.

Arsenical solutions are not preciptated by **water**, as are those of **antimony** and **bismuth**. (See 44, 50, and 54).

Arsenious Compounds.

Prepare a solution suitable for the following tests by treating, in a test-tube, a few grains of **arsenious oxide** (As_2O_3), with HCl and **water**, adding first the HCl in small quantity, and afterwards the water in *small portions at a time*, boiling after each addition. If these directions are not followed, the solution may not be strong enough to give satisfactory responses.

60. H_2S gives in neutral, or still better in acid solutions, a

pr. of **arsenious sulphide**, (As_2S_3). In *very* dilute solutions the reaction requires several hours, and is promoted by a gentle heat. The precipitate is not permanently produced in alkaline solutions.

61. **Alkaline sulphides**—as $(NH_4)_2S$—dissolve the pr. obtained in 60, provided the latter be washed or freed from its excess of HCl.

62. **Alkaline sulphides** in sufficiently small amount, give the same pr. as in 60.

63. **Alkalies** and their **carbonates** dissolve the sulphide precipitated in 60 and 62.

Alkalies do not precipitate arsenious solutions because soluble **arsenites** of the alkalies are formed.

64. **Silver nitrate** ($AgNO_3$), added to a neutral solution of an **arsenite** containing no chlorides nor ammonia salts, precipitates (yellow) **silver arsenite**, (Ag_3AsO_3).

65. **Copper sulphate** ($CuSO_4$), produces in neutral arsenious solutions the fine green pigment known as "**Paris green**," or **copper arsenite**, ($CuHAsO_3$). The experiment may be made with some of the hydrochloric solution neutralized by an alkali.

66. Metallic **copper** (*Reinsch's* test) reduces arsenic (as well as antimony and several other metals) to the **metallic state**. For this purpose a slip of clean, bright copper is heated in the acid solution. The reduced metal will be deposited as a *gray coating* upon the copper.

67. **Nascent hydrogen** decomposes arsenious solutions, forming **arsenious hydride**, (AsH_3). The latter compound is always formed when hydrogen is set free in presence of arsenic, either free or in soluble combination. The test is made by some form or modification of *Marsh's* process. When properly conducted, it is excessively delicate, and should never be omitted. The description of the process here given refers to the use of such simple apparatus as any one of ordinary ingenuity can arrange. The method, as well as the apparatus used, are familiarly known as

The "Marsh-test."—To a flask or test-tube having a capacity of one or two ounces, is to be adapted a close-fitting cork and a delivery-tube of hard glass, drawn at its outer end to an opening about the $\frac{1}{32}$ of an inch in diameter. The tube may be five or six inches long and bent at right angle if desired. [A substitute for the arrangement may be made by joining a clay pipe to a bottle, by fitting one end of a perforated cork to the bottle and the other into the pipe-bowl]. Hydrogen is prepared in the flask by acting upon some small pieces of **pure zinc** with dilute **hydrochloric** or **sulphuric acid**. The jet of **hydrogen** is to be set ablaze as it issues from the tube, *but only after the explosive mixture of air and hydrogen has had time to pass out.* No more zinc and acid are to be used than enough to give a flame half an inch to an inch in length. In igniting the jet, the point of the tube must not be held in the lamp- or match-flame, but merely brought to it for an instant, otherwise the tube will close by fusion. The froth arising by the evolution of gas must not be allowed to rise to more than half or two-thirds the capacity of the flask. It should be observed that the action is generally increased on adding the acid solution of **arsenic**. After learning to produce the hydrogen flame of suitable size at will, without inconvenience or explosion, it is then projected *obliquely* against a *clean*, *cold* surface of white porcelain, such as the inside of an evaporating dish or crucible lid. If the materials used are pure, no spot will be produced where the flame touches the porcelain, but if any **arsenic** or **antimony** be present, the same will unite with the nascent hydrogen, forming gaseous AsH_3, or SbH_3, and rise along with the surplus of **hydrogen** until it reaches the burning jet, by the heat of which it is decomposed. The **arsenic** or **antimony** thus set free in the form of vapor, is condensed by the cold porcelain, upon which it is deposited as a dark or black "**spot**" or "**mirror.**" Having found that the materials are pure, the experiment is repeated with the addition to the flask of a few drops of the **arsenious solution**. [The same apparatus and process are used for arsen*ic*, antimon*ous* and antimon*ic* compounds. – See 71, 52 and 59]. It must be remembered that AsH_3 and SbH_3 are excessively poisonous, and must not be allowed to escape in any considerable quantity into the air of the room. Therefore, as soon as several good spots are produced, the apparatus must be emptied or else the escaping gas collected. This may be done by passing the delivery tube into a solution of **silver nitrate**, by which means **arsenic** and **antimony** are conveniently separated, since antimony is precipitated, along with silver, as **Ag_3Sb**, while arsenic is held in solution as **H_3AsO_3** by the liberated nitric acid.

The **spots** obtained, as above described, from the hydrides of of arsenic and antimony are readily distinguishable from each other. While both vary in color from a barely perceptible stain to black, a practiced eye soon learns to distinguish a difference in the quality of the surface; arsenic being more lustrous. Any doubt that may be felt may be readily dispelled by dropping upon the spots a solution of **sodic hypochlorite, ($NaClO$)**, which quickly dissolves the arsenic spots, leaving those of antimony unchanged. Spots consisting of both elements are partly dissolved. **Liquor sodæ chlorinatæ**, U. S. P., answers the same purpose.

Instead of producing the spots by burning the gas, the decomposition may be effected by heating the tube to a dull red heat at some distance from the end. In this case the deposit forms a brilliant "**mirror**" within the tube; that of arsenic being distinguished by its solubility in **$NaClO$**, and by being always formed *after* passing the hot part of the tube, while antimony is generally formed *before* or on both sides of the heated part.

Arsenic Compounds.

Prepare for use a solution of **sodic arsenate (Na_2HAsO_4)**, by heating the **anhydride** (As_2O_3) with excess of **nitric acid**, for some minutes, and then neutralizing with **sodic hydrate** or **carbonate**.

68. **Sulphydric acid** does not immediately produce a precipitate, (60), but gradually reduces the compound to the arsenious form, and after some hours, or sooner if heated, throws down (yellow) **arsenious sulphide** (As_2S_3), and **sulphur**. The separation is complete however, only in acid solution, thus:

$$2Na_2HAsO_4 + 5H_2S + 4HCl = As_2S_3 + 2S + 4NaCl + 8H_2O.$$

69. **Soluble sulphides** give the (yellow) **arsenic sulphide, (As_2S_5)**; soluble in excess.

70. **Silver nitrate** precipitates (brown) **silver arsenate, (Ag_3AsO_4)**.

71. The tests of *Reinsch* and *Marsh* give the same results as 66 and 67.

Gold.

Prepare a solution of the **chloride** ($AuCl_3$), by dissolving a piece of the metal in **nitro-hydrochloric acid**, ($HNO_3 + 3HCl$).

72. H_2S precipitates from acid or neutral solutions (black) **gold sulphide**, (Au_2S from hot, Au_2S_3 from cold solutions), soluble in **yellow alkaline sulphides.**

73. **Alkaline sulphides** give the same pr. as 72, soluble in excess if the reagent be yellow, and less so in **ammonic** than in **sodic** or **potassic sulphides.**

74. **Stannous** and **stannic chlorides**, mixed, precipitate the "**Purple of Cassius.**"

75. **Reducing agents** generally, and also many metals, precipitate **metallic gold** either as a dark powder or else in a compact lustrous film. The *toning* of photographs is an application of this reaction. The prints immersed for a few moments in a very dilute solution of $AuCl_3$, receive that rich, warm tint not otherwise obtained.

Platinum.

A solution of the **chloride** ($PtCl_4$), may be used. It may be prepared as directed for gold chloride.

76. **Hydric sulphide** (H_2S), throws down after some time, or immediately from hot solutions, the dark **platinic sulphide**, (PtS_2).

77. Other **soluble sulphides** give the same precipitate, soluble, to some extent, in excess.

78. **Potassic** or **ammonic chloride** precipitates from strong solutions of platinum a **double chloride**, [$(KCl)_2,PtCl_4$ or $(NaCl)_2,PtCl_4$]. To obtain these nearly insoluble double chlorides from dilute solutions they must be concentrated by evaporation. [For the rarer metals, molybdenum, tungsten, selenium, iridium, rhodium, osmium, palladium and ruthenium, see larger works *].

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* ***Davyum*** is just announced.

BASES OF THE THIRD GROUP.

This group includes those metals that are precipitated by **alkaline sulphides**, but **not** by **hydric sulphide**, (H_2S). Hence the group reagent is **ammonic** (or other alkaline) **sulphide.**

The common metals of the group are **iron, manganese, cobalt, aluminum, chromium** and **zinc.**

[The rarer elements, not here described, are glucinum, thorium, zirconium, yttrium, erbium, cerium, lanthanum, didymium, titanium, tantalum, niobium, indium, thallium, gallium, uranium and vanadium.]

Iron.

The deportments of solutions containing **iron** in its principal forms of combination, **ferrous** and **ferric**, should be made perfectly familiar.

Ferrous.

A solution of **ferrous sulphate** will be suitable.

[NOTE.—Several organic acids, as tartaric, citric, etc., if present in any considerable quantity, prevent many of the deportments of iron as given below].

79. **Alkaline sulphides**, as $(NH_4)_2S$, precipitate (black) **ferrous sulphide**, (FeS). This precipitate, by exposure to the air for some time, becomes rust-colored by oxidation:

$$\text{First, } FeS + 4O = FeSO_4 \text{ and then, } 6FeSO_4 + 3O = 2Fe_23SO_4 + Fe_2O_3.$$

This tendency of ferrous salts to pass into the ferric combination, constitutes one of their most important distinctive deportments. It takes place with nearly all moist fer*rous* precipitates.

80. **Alkalies** precipitate **ferrous hydrate** ($Fe2HO$), which at first is light colored, but soon darkens by oxydation; thus,

$$6Fe2HO + 3O = 2(Fe_26HO) + Fe_2O_3.$$

81. **Alkaline carbonates** throw down (light) **ferrous carbonate**, ($FeCO_3$), soon changing to brown **ferric hydrate**, (Fe_26HO) thus:

$$2FeCO_3 + 3H_2O + O = Fe_26HO + 2CO_2.$$

82. **Soluble ferrocyanides** (as K_4Cfy), give a precipitate which, if no ferric salt be present, is at the first instant white or nearly so, (**potassio-ferrous ferrocyanide** = K_2FeCfy*), but very soon passes by oxidation into "**Prussian blue,**" (**Ferric ferrocyanide,** = Fe_4Cfy_3); thus:

$$6K_2FeCfy + 3O = Fe_4Cfy_3 + 3K_4Cfy + Fe_2O_3.$$

83. **Soluble ferricyanides** (K_6Cfy_2 or K_6Cfdy), give *immediately* a fine blue precipitate ("**Turnbull's blue**" or **ferrous ferricyanide** = Fe_3Cfy_2), very similar in color to "**Prussian blue.**"

$$3FeSO_4 + K_6Cfy_2 = Fe_3Cfy_2 + 3K_2SO_4.$$

84. **Potassic sulphocyanate** (KCNS), produces *no red color, unless a ferric compound is present.*

85. **Tannic, gallic and pyrogallic acids** give precipitates (**tannate, gallate and pyrogalate of iron**), which quickly change to blue-black ink. See also 94.

Ferric Compounds.

Solution of **ferric chloride** (Fe_2Cl_6), may be used.

86. **Alkaline sulphides,** as $(NH_4)_2S$, reduce ferric to ferrous compounds, and precipitate **ferrous sulphide,** (FeS).

87. **Alkalies** and their **carbonates** precipitate (brown) **ferric hydrate** ($Fe_2 6HO$), which very slowly changes to Fe_2O4HO and $Fe_2O_2 2HO$, and finally to Fe_2O_3.

88. Soluble **phosphates,** (Na_2HPO_4), throw down **ferric phosphate,** ($Fe_2 2PO_4$).

89. **Ferrocyanides** (K_4Cfy), give "**Prussian blue,**" (Fe_4Cfy_3). The reaction takes place immediately. (See 82).

90. **Ferricyanides** (K_6Cfy_2), give no precipitate if no *ferrous* compound is present, but only a greenish or dark solution. (See 83).

91. **Sulphocyanates** (KCyS), give a **blood-red solution.** The color is distinct even in exceedingly dilute solutions. The test may fail in presence of mercuric chloride or several organic acids.

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* Or rather, K_4Cfy, Fe_2Cfy.

92. **Tannic, gallic** and **pyrogallic acids** to some extent exert a reducing action, and give (black) precipitates that may be ferrous or ferric, according as oxydizing agencies may or may not be absent.

93. **Alkaline acetates,** added in *large excess* to neutral or slightly acid ferric solutions, and boiled, completely separate the iron as a **basic acetate.** (Composition variable).

94. To detect traces of

Ferric in ferrous solutions:	*Ferrous in ferric solutions:*
Use 91.	To a slightly colored solution of **permangate of potash,** ($KMnO_4$), add a few drops of the solution to be tested. If a ferrous compound be present the color is quickly destroyed by the transfer of oxygen from the permanganate to the ferrous salt.

[From its combination in **ferrocyanides, ferricyanides** and "**ferrates,**" iron may be separated by boiling with moderately strong **sulphuric acid.** The solution may then be tested as above].

Manganese.

In some of its deportments and physical characters, this metal and its compounds resemble iron. Its salts may be either manganous ($MnCl_2$), or manganic (Mn_2Cl_3). The latter are reduced to the former by boiling with HCl.

A solution of **manganous sulphate** ($MuSO_4$), may be used.

95. **Alkaline sulphides** [$(NH_4)_2S$], precipitate (flesh colored) **manganous sulphide,** (MnS).

96. **Alkalies** precipitate (light colored) **maganous hydrate** ($Mn2HO$), which, by shaking and exposure to the air, soon becomes brown, by oxydation, to an **oxyhydrate** (Mn_2O_32HO). The *fresh* precipitate is slightly soluble in NH_4Cl, and therefore is not formed if much of the latter salt be present].

97. **Alkaline carbonates** also throw down $Mn2HO$, wholly or partially prevented by the presence of NH_4Cl.

98. **Ferrocyanides** throw down (light-colored) **manganous ferrocyanide**, (Mn_2Cfy).

99. **Ferricyanides** precipitate (dark-colored) **mananganous ferricyanide**, (Mn_3Cfy_2.

[In manganocyanides, manganicyanides, manganates and permanganates, the **Mn** may be detected by the method given in 94 for iron].

Nickel.

Though **nickel** forms two oxides, nickelous (NiO), and nickelic, (Ni_2O_3), both form with acids the same salts, (nickelous).—Solution of the **sulphate** ($NiSO_4$), may be used.

100. **Alkaline sulphides, as** ($(NH_4)_2S$, precipitate (black) **nickel sulphide**, (NiS).

101. **Alkalies** precipitate (greenish) **nickel hydrate**, ($Ni2HO$), soluble in excess of **ammonia**, forming a blue solution somewhat similar to that of copper.

102. **Alkaline carbonates** throw down (green) **nickel hydrocarbonate**, ($NiHCO_3$), soluble in excess, forming a bluish-green solution.

103. **Ferricyanides** precipitate (greenish-yellow) **nickel ferricyanide**, (Ni_3Cfy_2).

104. **Chlorine water** precipitates from neutral or alkaline solutions (black) **nickelic hydrate**, (Ni_26HO). Distinction from **cobalt**.

Cobalt.

Two oxides and corresponding series of salts are known: cobaltous and cobaltic. The former are the more stable. The latter are unstable and readily give up one-third of their oxygen.

105.. **Alkaline sulphides** throw down from either class (black) **cobaltous sulphide**, CoS).

106. **Alkalies** precipitate (blue, green or brown), **basic salts** or **hydrates** (according to the temperature and exposure); soluble in excess of **ammonia**. Also soluble in $(NH_4)_2CO_3$, to an **intensely violet-red** solution.

107. **Alkaline carbonates** precipitate (pale violet-red)

cobaltous hydrocarbonate, ($CoHCO_3$), soluble in ammonic carbonate, and slightly so in excess of the fixed carbonates.

108. Ferricyanides precipitate (brownish-red) cobaltous ferricyanide (Co_3Cfy_2). Distinction from nickel.

Aluminum.

A solution of aluminic sulphate (Al_23SO_4), or of alum (Al_23SO_4,K_2SO_4), may be used.

109. Alkaline sulphides produce a gelatinous and nearly transparent precipitate of aluminic hydrate, (Al_26HO).

110. The fixed alkalies precipitate the same hydrate, soluble in excess of the precipitant.

111. Ammonia gives the same precipitate, *slightly* soluble in excess if no ammonic chloride be present.

112. Alkaline carbonates throw down a white precipitate, varying from a basic carbonate or hydrocarbonate to the normal hydrate given by 109, 110 and 111, according to the temperature of the solution. By prolonged boiling, CO_2 is entirely expelled.

113. Ferrocyanides precipitate (white) aluminic ferrocyanide, (Al_4Cfy_3).

114. If an alkali acetate ($NaC_2H_3O_2$), in considerable excess, together with some ammonic chloride, be boiled with a neutral or very slightly acid aluminic solution, the Al will separate entirely as a "basic" aluminic acetate, ($Al_2O,4C_2H_3O_2$)? [Several organic acids interfere somewhat with this reaction].

Chromium.

This metal (Cr) forms two principal oxides, Cr_2O_3 and CrO_3. The first is a base, but the hydro-hydrate of the latter (CrO_3-H_2O or H_2CrO_4), is a well-defined and powerful acid. To study Cr *as a base*, any soluble salt, as the chloride (Cr_2Cl_6), or sulphate (Cr_23SO_4), may be used.

115. Alkaline sulphides, as $(NH_4)_2S$, precipitate (greenish) gelatinous chromic hydrate, (Cr_26HO).

116. Alkalies give the same precipitate, (Cr_26HO), readily

soluble in excess of the **fixed alkalies**, (cold), but only slightly so in **ammonia**. From the (green) alkaline solution, long boiling re-precipitates the **hydrate**. This is explained by supposing that *in the cold* the chromic hydrate acts as a feeble acid, forming with the alkali a soluble **hypochromite**, thus:

$$Cr_2 6HO + 2KHO = K_2Cr_2O_4 + 4H_2O,$$

and that heat decomposes the compound thus formed, setting free the original **hydrate**.

117. **Alkaline carbonates** also precipitate the **hydrate**, slightly soluble in excess.

118. **Soluble phosphates** (Na_2HPO_4), throw down **chromic phosphate**, ($Cr_2 2PO_4$).

Chromium as an Acid.

Solution of a **chromate** or "**bi-chromate**," will answer.

118, *a*. Chromates are lighter colored than bichromates. The former can be converted into the latter by adding an acid. The reverse change may be made by adding an alkali.

118 *b*. **Silver nitrate** gives (brown-red) **silver chromate** (A_2CrO_4).

118 *c*. **Lead acetate** precipitates (yellow) **lead chromate** ("**chrome yellow**," = $PbCrO_4$).

Zinc.

A solution of the **sulphate** ($ZnSO_4$), may be used.

119. **Alkaline sulphides**, as $(NH_4)_2S$, precipitate (white) **zinc sulphide**, ($ZnSO_4$) soluble in excess. Unless the solution be pure the precipitate will be more or less colored.

120. **Alkalies** throw down (white) **zinc hydrate**, ($Zn2HO$), readily soluble in excess of the cold precipitant and partially reprecipitated by boiling.

121. **Alkaline carbonates** (Na_2CO_3), in absence of much NH_4Cl, throw down (white) **basic zinc hydrocarbonate**, ($3Zn2HO,2ZnCO_3$), soluble in excess of **ammonic carbonate, as well as in free alkalies** and **acids**.

122. **Ferricyanides** precipitate (dark orange) **zinc ferricyanide**, (Zn_3Cfy_2).

BASES OF THE FOURTH GROUP.

This group includes the alkaline earths: **lime, baryta,** and **strontia,** and also **magnesia.** They are not precipitated by any of the previous *group reagents*, but are precipitable by **ammonic carbonate,** the fourth group reagent.

Calcium.

Any soluble lime salt, as **calcic chloride,** ($CaCl_2$), may be used. It should be neutral, or nearly so.

123. **Alkaline carbonates,** as $(NH_4)_2CO_3$, precipitate (white) **lime carbonate,** ($CaCO_3$).

124. **Fixed Alkalies** give no precipitate except in very strong solutions.

125. **Ammonia,** if free from **carbonate,** gives no precipitate.

126. **Ammonic oxalate** $[(NH_4)_2C_2O_4]$, and other soluble oxalates precipitate (white) **lime oxalate,** (CaC_2O_4).

127. **Soluble phosphates,** as Na_2HPO_4 give (white) **lime phosphate,** ($CaHPO_4$).

128. H_2SO_4 and **soluble sulphates** generally, except **lime sulphate,** give, in solutions not *very* dilute, a white precipitate of **lime sulphate,** ($CaSO_4$—"**Plaster of Paris**"). If this precipitate be thoroughly dried at a high heat and then moistened with a little water, it quickly "sets" to the hard material seen in "**plaster casts.**" [The experiment may be made by washing the precipitate on a filter or by decantation, and then transferring, igniting, moistening and "setting" it upon a piece of coin, the imprint of which will thus be copied].

129. **Soluble chromates** do **not** precipitate $CaCrO_4$ as the latter salt is soluble. (See 135 and 140).

Barium.

Solution of the **chloride** ($BaCl_2$) will be suitable.

130. **Alkaline carbonates**—same as 123.

131. **Alkalies**, about the same as 124 and 125.

132. **Ammonic oxalate**, (See 126), precipitates (white) **baric oxalate**, (BaC_2O_4).

133. Soluble **phosphates** give the **baric phosphate**, ($BaHPO_4$).

134. H_2SO_4, and other soluble **sulphates** precipitate (white) **baric sulphate**, ($BaSO_4$), **insoluble in acids.**

135. Soluble **chromates**, as K_2CrO_4, throw down **baric chromate**, ($BaCrO_4$).

136. **Hydrofluosilicic acid**, ($2HF,SiF_4$, known also as silicofluoric acid—H_2SiF_6—but which is more properly an acid double salt—**hydrofluoric silicofluoride**—in which only the 2HF performs the acid function without separating from the SiF_4), precipitates (white) **bariofluoric silicofluoride**, (BaF_2,-SiF_4). Distinction from lime and strontia.

Strontium.

A solution of **strontic nitrate** ($Sr2NO_3$), many may be used.

137. **Alkalies** and their **carbonates** deport with strontic solutions in the same manner as with lime and baryta, precipitating **strontic hydrate** ($Sr2HO$), or **strontic carbonate** ($SrCO_3$).

138. Soluble **oxalates** precipitate (white) **strontic oxalate**, (SrC_2O_4).

139. Solution of a **phosphate** gives **strontic phosphate**, ($SrHPO_4$).

140. **Alkali chromates**, (K_2CrO_4), in moderately strong solutions, give (yellowish) **strontic chromate** ($SrCrO_4$).

140. Soluble **sulphates** as well as free **sulphuric acid**, precipitate (white) **strontic sulphate** ($SrSO_4$), provided the solution be not *very* dilute or *very* acid. Of course solution of **strontic sulphate** gives no precipitate. Sol. of **calcic sulphate** acts only **after some time** if at all.

[Though lime, baryta and strontia deport very similarly in the wet way, they are easily distinguished by the wet and the dry processes together].

Magnesium.

This metal forms a base which is properly intermediate between the fourth and fifth group. Its normal **carbonate** however, is nearly insoluble in water, and hence we place it in this group. A solution of the **sulphate** may be used.

Most of the **salts of ammonium** prevent the precipitation of **magnesic hydrate**, ($Mg2HO$), or **carbonate**, ($MgCO_3$), by the formation of soluble double salts.

141. **Ammonic carbonate** — $(NH_4)_2CO_3$ — precipitates from *strong* solutions a portion of the magnesia as normal **carbonate**, $MgCO_3$), leaving the greater part in solution as a **double salt**, $[NH_4)_2CO_3,(MgCO_3)_n]$.

142. Normal **carbonates** of the **fixed alkalies** precipitate most of the **Mg** as a **carbonate**, more or less **basic**, according to the temperature, and strength of the solution. $[(MgCO_3)_{1 \text{ to } 4}$, $Mg2HO$, is given as the precipitate formed. By boiling, part of the carbonic acid is expelled, preventing the formation of a soluble **bicarbonate** and also rendering the precipitate more **basic**].

143. **Fixed alkalies** precipitate **magnesic hydrate**, ($Mg2HO$).

144. **Ammonia** forms a double salt with one-half the **magnesium** and precipitates the other half as **magnesic hydrate**, ($Mg2HO$).

145. Soluble **phosphates**, (Na_2HPO_4), precipitate **magnesic phosphate** ($MgHPO_4$) from neutral or alkaline solutions even though **ammonic salts** be present in large quantity. In dilute solutions the precipitation is promoted by rubbing the inside of the test-tube with a glass stirring-rod.

BASES OF THE FIFTH GROUP.

This division includes the **volatile alkali**, ammonia, (NH_3 and NH_5O), and the **fixed alkalies**, of which the metallic elements are **sodium**, **potassium**, **lithium**, **cæsium** and **rubidium**. [For the study of the last three, see larger works.]

Ammonia.

Solution of **ammonic chloride** will be suitable.

146. **Hydrates** of the **fixed alkalies or alkaline earths** decompose ammonic compounds, liberating **gaseous ammonia,** (NH_3) which is easily recognized by its peculiar pungent smell. Heating the mixture promotes the reaction.

147. **Gaseous HCl** mixed with gaseous ammonia unites with it, forming dense white clouds of **ammonic chloride,** (NH_4Cl). A rod moistened with **hydrochloric acid** and held in **free ammonia,** or moistened with **ammonic hydrate** and held in **vapor** of the **acid,** will show this reaction when only very slight traces are present. HCl and NH_3 are thus delicate, reciprocal tests. The student will observe that most of the wet tests have their reciprocals.

148. **Nessler's test** for ammonia is excessively delicate, if made strictly according to the following directions: To ten or fifteen drops of mercuric chloride add potassic iodide drop by drop until the red precipitate is **exactly** dissolved; then make the solution strongly alkaline with **potassic hydrate.** If this solution ($HgI_2,2KI + K$), be added to a **single drop or less** of ammonic solution, a copious **red-brown precipitate** (said to be NHg_2I,) is produced.

149. The *volatile nature* of ammonic compounds may be tested according to 272.

Potassium.

[As nearly all the compounds of potassium — and also of sodium—are soluble in water, very few reagents are found to give precipitate reactions, and these respond promptly in strong solutions only].

A solution of **potash nitrate,** (KNO_3), or **chloride,** (KCl), may be used.

150. **Platinic chloride,** ($PtCl_4$), in strong and neutral or acid solutions precipitates **potassio-platinic chloride,** ($PtCl_4$,-$2KCl$). The precipitate is brownish-yellow, heavy and crystalline.

151. A strong solution of **tartaric acid**, ($H_2C_4H_4O_6$), or of **sodic bitartrate**, ($NaHC_4H_4O_6$), precipitates from moderately strong and *neutral* or *alkaline* potassic solutions the nearly insoluble, white, crystalline, granular **potassic bitartrate**, ($KHC_4H_4O_6$). In alkaline solutions the acid must be added in considerable excess.

152. The **flame test** should be used as directed in 267.

Sodium.

Solution of **sodic chloride**, ($NaCl$), may be used.

153. Neither **platinic chloride** nor **tartaric acid** precipitate sodium from its solutions as they do potassium.

154. Solution of **potassic antimoniate**, ($KSbO_3$), if strong and freshly prepared, slowly deposits from moderately strong sodic solutions the white crystalline **sodic antimoniate**, ($NaSbO_3$).

155. The **flame test** should be used as directed in 267.

[Many compounds having more or less strongly marked basic properties are known. The **amines** and the organic **alkaloids** are of this nature. For their study, the reader is referred to the general literature of those bodies].

ACIDS.

Under this division are included bodies capable of uniting with bases to form salts. The number of known acids is very great. The deportments of thirty, that are of frequent occurrence, and which have well-marked distinctive characters, are given in the following three groups:

ACIDS OF THE FIRST GROUP.

The acids of this group are set free from their soluble combinations by the general group reagent, which is **dilute sulphuric acid.**

"*Carbonic Acid*," (CO_2).

The acid proper of this radical is H_2CO_3. A water solution of any soluble **carbonate** may be used.

156. **Dilute sulphuric acid** (H_2SO_4 + aq), produces an immediate **effervescence** by the liberation of **carbon dioxide**, (CO_2) in the gaseous state. Colorless and nearly inodorous. [As CO_2 is somewhat soluble in water, effervesence may not be observed if the quantity of carbonate present be *very small*].

The CO_2 liberated in the test-tube is detected by passing down, nearly to the liquid, a drop of clear **lime-water** suspended upon the point of a glass rod. The drop becomes milky by formation of **lime carbonate**, ($CaCO_3$).

157. **Solutions of metallic salts** (except those of the fifth group of bases) produce precipitates which are **carbonates** of the given bases. Thus, in neutral or alkaline solutions:

a. **Calcic chloride** gives (white) **lime carbonate**, ($CaCO_3$).

b. **Baric chloride** gives (white), **baric carbonate**, ($BaCO_3$).

Sulphydric Acid, (H_2S).

Solution of any **sulphide** (as K_2S), may be used.

158. Dilute H_2SO_4 liberates **gaseous** H_2S. **Heat** promotes the separation. It is recognized by its characteristic **odor of boiled eggs** or "**sulphur water.**" [The odor of "**rotten eggs**" is much more intolerable than that of pure H_2S]. The gas as it is set free may be detected by passing down into the test-tube a glass rod or strip of paper moistened with **lead acetate** or **silver nitrate.** The rod or paper will be blackened by formation of **lead** or **silver sulphide**, (PbS or Ag_2S). The odor of H_2S should be made familiar by using that reagent as a reference. Compare also the odor of this acid with that of **sulphurous acid**, (H_2SO_3).

[NOTE.—There are several cases in which dilute sulphuric acid does not readily produce the liberation of H_2S. Such is the case when the body acted upon is a sulphide of a metal of the first or second group of bases and also when a strong oxydizing agent is present, in which latter case an oxy-sulphur acid is formed. Such cases however, are not likely to occur at this stage of progress].

Solutions of **salts** of the **second** and **third group metals** give precipitates which are **sulphides** of the metals used. In solutions of *free* H_2S the reaction takes place with **salts** of the **second group only**, since the sulphide produced with a **third group** base is soluble in the acid that would otherwise be liberated.

Apply the following tests:

159. **Lead acetate** ($Pb2C_2H_3O_2$), gives (black) **lead sulphide** (PbS).

160. **Silver nitrate**, ($AgNO_3$), gives (black) **silver sulphide**, (Ag_2S.)

161. **Mercuric choride**, ($HgCl_2$), gives (black) **mercuric sulphide** (HgS). See **22.**

162. More delicate tests than the foregoing are **basic lead acetate** ($Pb_2O2C_2H_3O_2$), **sodic "nitro-prusside"** ($Na_2NOFe2CN$), and **sodio-plumbic hydroxide**, ($NaHO,-Pb2HO$). These are seldom used however, because the former tests are sufficiently delicate for ordinary purposes.

163. **H_2S** is a valuable *reducing agent* and therefore deoxydizes many of the higher oxides to lower grades of oxydation. Test *pure* ferric chloride with potassic ferricyanide to show that it contains no ferrous compound. Now add a little **H_2S**, and repeat the test, when the presence of ferrous salt will be shown by the formation of **"Turnbull's blue,"** (Fe_3Cfy_2).

Sulphurous Acid, (H_2SO_3).

Sulphur dioxide, (SO_2), is the suffocating gas formed by burning sulphur. It readily unites with water, forming the true **sulphurous acid** (H_2SO_3), which evolves the same odor as the oxide.

164. The salts of sulphurous acid (**sulphites**), when warmed with dilute **sulphuric acid**, liberate free **sulphurous acid. No free sulphur separates.** Any soluble **sulphite**, as **Na_2SO_3**, may be used.

165. **Baric chloride**, ($BaCl_2$), precipitates (white) **baric sulphite**; ($BaSO_3$), which is soluble in dilute **HCl** while **$BaSO_4$**, is not.

166. **Calcic chloride** gives a reaction corresponding to 165, ($CaSO_3$).

167. **All soluble metallic salts**, except those of the alkali metals, precipitate, from the neutral or alkaline solutions, **sulphites** of the given metal. As *sulphites are reducing agents*, (by their tendency to higher oxydation), their precipitates, which if

pure would be easily soluble in dilute acids, are seldom entirely so if the precipitant was a salt of a fourth group base, because of the **sulphates** formed to more or less extent during the reaction, thus:

$$BaCl_2 + Na_2SO_3 + O = BaSO_4 + 2NaCl.$$ (Compare 158.)

168. **Ferric chloride** produces a red solution* (**ferric sulphite** $= Fe_23SO_3$), which slowly (or sooner by boiling) becomes lighter colored by conversion into **ferrous sulphate,** ($FeSO_4$), thus:

$$3Na_2SO_3 + Fe_2Cl_6 = Fe_23SO_3 + 6NaCl,$$

and then

$$3Fe_23SO_3 + 3H_2O + O_3 = 6FeSO_4 + 3H_2SO_3.$$

Hyposulphurous Acid, ($H_2S_2O_3$).

Solution of any **hyposulphite,** as $Na_2S_2O_3$, may be used.

169. Dilute H_2SO_4, either cold or warm, decomposes **hyposulphites** with evolution of **sulphurous acid** and liberation of **free sulphur.** (Compare with 164).

Hypochlorous Acid.

Solution of "**bleaching salt**" ($CaClO_2 + CaCl_2$), or of a **true hypochlorite** may be used.

170. Dilute H_2SO_4, either cold or warm, decomposes **hypochlorites,** liberating **free chlorine,** which may be recognized by its odor and by its **bleaching effect** upon vegetable colors. Solution of **litmus** or **indigo** may be used. Even without addition of an acid the solution decomposes rapidly enough to act slowly as a bleaching agent.

171. If a small crystal of **pure ferrous sulphate** be dissolved in a little distilled water that has just been boiled, and a few drops of **potash sulphocyanate** be then added, the mixture, which should be colorless, is soon changed to **blood-red** when mixed with a **hypochlorite solution,** because the latter converts the **ferrous** into a **ferric solution.** (See 84 and 91).

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* Or brown precipitate if enough reagent be used.

Chloric Acid.

Cloric and **nitric acids** are included in this group partly because their salts are decomposed by H_2SO_4 and partly because they do not belong to other groups. Their salts have considerable resemblance to each other. *All chlorates are soluble in water.* Though they are easily detected in the *dry way*, (see 271), there are but few distinctive deportments in the "*wet way.*"—Use $KClO_3$.

172. **Strong** H_2SO_4 added to a **strong** chlorate solution gives a yellow or red color and evolves the smell of **chlorine tetroxide** (Cl_2O_4), and **perchloric acid** ($HClO_4$), the former producing the yellow color.

173. **Sodic sulphite,** (Na_2SO_3), mixed with a little dilute H_2SO_4 and added to chlorate solution, converts the latter into a **bleaching agent** capable of destroying the color of an indigo or litmus solution. Small quantities must be used and heat avoided, lest an explosion occur.

[NOTE.—A mixture of Na_2SO_3 and H_2SO_4 is to *some* extent a reducing agent *without* any added chlorate.]

174. Apply test 171, using **chlorate** in place of **hypochlorite** solution, and compare the results.

Nitric Acid, (HNO_3).

Nearly all **nitrates** are soluble in water. Solution of "**nitre**" (KNO_3), may be used.

175. **Brown ring test.** If the solution to be tested is thought to contain only a very small amount of nitric acid, it should be concentrated by evaporation. To a small portion of the cold solution in a test-tube add an equal volume of **strong sulphuric acid.** *Cool the mixture* again and add a drop or two of solution of **ferrous sulphate,** letting the drops flow gently down while the test-tube is inclined, so that the sulphate may float unmixed upon the top. If **nitric acid,** free or combined, be present, a more or less distinctly marked brown color or "**ring**" is very soon formed at the point where the two liquids join. The H_2SO_4 serves a double purpose, first to decompose the nitrate and then to

form part of the dark color. Variable modifications of such reactions as the following occur:

$$2KNO_3 + 4H_2SO_4 + 10FeSO_4 = \underbrace{3Fe_23SO_4 + 2(FeSO_4)_2NO}_{\text{Brown ring.}} + K_2SO_4 + 4H_2O.$$

176. A **nitric solution** heated with about an equal volume of **strong** H_2SO_4 and a bit of **copper** (or **brass**), evolves **brown vapors** of **nitric trioxide** and **tetroxide**, (N_2O_3 and N_2O_4), produced by oxidation of the N_2O_2 resulting from the decomposition of the nitrate, thus:

$$4KNO_3 + 8H_2SO_4 + 6Cu + 3O = N_2O_3 + N_2O_4 + 2K_2SO_4 + 6CuSO_4 + 8H_2O.$$

NOTE.—The action of nitric acid upon different metals presents many peculiarities depending upon strength, temperature, the metal used etc., as shown in the following reactions, in which five different degrees of deoxydation are seen:

1. $4HNO_3 + Sn = 2N_2O_4 + SnO_2 + 2H_2O.$
2. $6HNO_3 + 4Ag = N_2O_3\ 4AgNO_3 + 3H_2O.$
3. $8HNO_3 + 3Cu = N_2O_2 + 3Cu2NO_3 + 4H_2O.$
4. $10HNO_3 + 4Zn = N_2O + 4Zn2NO_3 + 5H_2O.$
5. $9HNO_3 + 4Zn = NH_3 + 4Zn2NO_3 + 3H_2O.$

Other peculiarities are also known.

Nitrous Acid, (HNO_2),

And other **nitrites** are seldom met with except as incidental products and impurities in other compounds. They may be distinguished from nitrates by the following deportments:

177. **Very dilute** H_2SO_4 and **copper chips**, give **brown vapors** or **color**, or **both** when heated with a **nitrite**, but not with a pure **nitrate**.

178. **Soluble iodides**, together with very dilute H_2SO_4, instantly **set free their iodine**, producing a **brown liquid**, while nitrates give this reaction very slowly, if at all, even by the use of strong acids.

179. In strong solutions, **silver nitrate** precipitates the acid as (white) **silver nitrite**, ($AgNO_2$).

NOTE.—Nitrous acid is prone to change to nitric acid by absorption of oxygen, thus:

$$HNO_2 + O = HNO_3.$$

The same *reducing power* inheres to other nitrites, by which they are converted partly into **nitrates**. Some metals, by treatment with nitric acid, tend to form both **nitrates** and **nitrites**; thus:

$$2Ag + 2HNO_3 = AgNO_3 + AgNO_2 + H_2O,$$

while the reducing power of the nitrite thus formed and the oxydizing power of the excess of acid used, and of the N_2O_3 also formed, * combine to restrict the result *mainly* to the production of **nitrate**. This subject needs much experimental study.

Acetic Acid, ($HC_2H_3O_2$).

Use solution of any **acetate**, as $KC_2H_3O_2$.

180. **Dilute** H_2SO_4, aided by **heat**, liberates vaporous **acetic acid**, recognizable by its **odor of vinegar**.

181. If an acetic solution be mixed with strong H_2SO_4 and a drop or two of pure alcohol, (C_2H_6O), the mixture, after cooling, gives off the pleasant, fruity smell of **ethyl acetate**, (**"acetic ether,"** = $C_2H_5,C_2H_3O_2$).

182. **Ferric chloride** (Fe_2Cl_6), produces a red solution of **ferric acetate**, ($Fe_26C_2H_3O_2$).

If sufficient **excess of acetate**, and *little* or no *free acid* be present, boiling gives a rust-colored precipitate of **basic ferric acetate**. [Composition variable according to the proportion of iron and other bodies present; $Fe_26C_2H_3O_2,(Fe_2O_3)_{1 \text{ or more}}$].

183. **Silver nitrate**, ($AgNO_3$), added to a not very dilute solution of a neutral acetate, produces a white, crystalline precipitate of **silver acetate**, ($AgC_2H_3O_2$).

ACIDS OF THE SECOND GROUP.

This group includes acids that are precipitated from neutral or alkaline solutions by **baric** or **calcic chloride**.

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* As shown in ***176***, note 2.

Sulphuric Acid, (H_2SO_4).

Use a solution of any **sulphate**, as **$MgSO_4$**. The distinction between **sulphates**, (M_2SO_4), and **bisulphates**, ($MHSO_4$), need not be made experimentally in qualitative work. Indeed it is not certain that they differ essentially *when in solution*.

184. **Baric chloride** gives a white pr. of **baric sulphate**, ($BaSO_4$), insoluble in *dilute* HCl, or HNO_3.

185. Soluble **lime salts**, as $CaCl_2$, precipitate most of their lime as (white) **lime sulphate**, (“**Plaster Paris**” = $CaSO_4$). (See 188).

186. Soluble **lead salts**, as $Pb2C_2H_3O_2$, throw down nearly all their lead as (white) **lead sulphate**, ($PbSO_4$). (See 188).

187. **Uncombined sulphuric acid** may be detected by evaporating the solution to dryness, or as nearly to dryness as possible *on a water-bath*. If any moisture remains, showing an acid reaction by reddening blue litmus paper, add to it a small portion of white sugar and continue the heat for some minutes. If the mass is not made black or dark colored, *free* sulphuric acid is not present in notable quantity. (This test need not be used except for its special purpose).

188. **Sulphates** are **insoluble** in **strong alcohol**. If the latter in sufficient quantity be added to a moderately strong solution of a sulphate, the salt will be almost completely precipitated, unchanged. Addition of alcohol in tests 185 and 186 makes the precipitation very nearly complete in dilute solutions.

Phosphoric Acid, (H_3PO_4).

The form in which this acid and other phosphates are usually found is that known as *trihydric*, *tribasic* or *normal*, corresponding to the above formula.

Solution of common **sodic phosphate**, (Na_2HPO_4), may be used.

189. **Baric solutions** precipitate their baryta as (white) **baric phosphate** ($BaHPO_4$) when added to neutral or alkaline **phosphate solutions**. The precipitate is soluble in any of the common acids, phosphoric included.

190. **Calcic chloride**, ($CaCl_2$), gives (white) **calcic phosphate**, ($CaHPO_4$), in neutral or alkaline solutions.

191. *Neutral* solutions of **all metals except those of the alkalies** are precipitated, in neutral or alkaline phosphate solutions, as **phosphates** of the given **metals.** All these precipitates are soluble in all the common acids, including phosphoric. Try **ferrous sulphate**; also **ferric chloride**; (both neutral). [Those metals that are prone to form insoluble **carbonates** and **oxychlorides** generally displace *all* the basic hydrogen, so as to form *full* metallic or **anhydrophosphates**, as $Pb_3 2PO_4$, and $BiPO_4$].

192. **Silver nitrate** precipitates (pale yellow) **silver phosphate**, (Ag_3PO_4), difficultly soluble in **acetic acid**. [Anhydro precipitated phosphates are in general less readily soluble in weak acids than are the phosphates containing basic hydrogen].

193. "**Magnesia mixture**," (prepared by dissolving 1 part **magnesic sulphate**, 2 parts **ammonic chloride** and 4 parts **ammonic hydrate**, in 8 parts **water**), throws down from phosphoric solutions the white, crystalline **ammonio-magnesic phosphate**, ($NH_4MgPO_4 + 6aq$).

194. An **alkali acetate**, as $NaC_2H_3O_2$, added in considerable quantity to a phosphatic solution containing a *very small trace* of free **HCl** or HNO_3 and a single drop of **ferric chloride**, produces a yellowish-white or rusty precipitate of **ferric phosphate**, ($Fe_2 2PO_4$). (See 93).

195. Nitric acid solution of **ammonic molybdate** [$(NH_4)_2$-MoO_4], precipitates pale-yellow **ammonic phospho-molybdate**, the constitution of which seems to be variable. This test, though very delicate if judiciously used, is not recommended to beginners. To insure success in its use, at least a hundred parts of the reagent to one part of phosphate must be used, and no free **HCl** present. If a precipitate is not formed in a few minutes, the mixture must be *gently* warmed and shaken or stirred.

Pyrophosphoric Acid, ($H_4P_2O_7$).

The **soda salt** may be used.

196. Pyrophosphates do not react with nitric acid solution of

ammonic molybdate, at least not until after the HNO_3, has converted the pyro- into **normal phosphate.**

197. **Copper sulphate** ($CuSO_4$), added in proper quantity to a pyrophosphatic solution, precipitates **cupric pyrophosphate**, ($Cu_2P_2O_7$), which is readily soluble in an **alkaline pyrophosphate.** (Distinction from phosphates and metaphosphates).

Metaphosphoric Acid.

Sodic metaphosphate may be used.

198. "**Magnesia mixture**," (see 193), fails to precipitate metaphosphates unless the solution is very strong, and not then if much NH_4Cl is present.

199. **White of egg** with **acetic acid**, added to a metaphosphatic solution, is at once **coagulated.** (Distinction from phosphates and pyrophosphates).

[Several varieties of metaphosphoric acid and corresponding salts are known].

Phosphorous Acid (H_3PO_3).

Solution of any **phosphite**, as Na_2HPO_3, may be used.

200. **Mercuric chloride** ($HgCl_2$), in excess, aided by heat, throws down **mercurous chloride**, (Hg_2Cl_2).

201. **Lead acetate**, ($PbC_2H_3O_2$), precipitates **lead phosphite**, ($PbHPO_3$), insoluble in **acetic acid.**

[*Hypophosphorous acid* belongs to the fourth group].

Silicic Acid, (H_2SiO_3).

Only the silicates of the fixed alkalies are soluble. **Potash silicate** ("**water-glass**" = K_2SiO_3), may be used.

202. **Baric chloride** ($BaCl_2$), in excess, precipitates (white) **baric silicate**, ($BaSiO_3$).

203. **Chlorhydric acid**, (HCl), sets free white gelatinous **silicic acid**, (H_2SiO_3), which by drying becomes perfectly insoluble in all acids except **fluorhyhric**, (HF). See 268.

"*Boracic Acid*, H_3BO_3," or preferably *Boric Acid*, (HBO_2).

The former is the "*orthoboric*," the latter "*metaboric*" acid.

Solution of sodic "**metaborate**," ($NaBO_2$), or of **borax**, ($Na_2B_4O_7 = B_2O_3 \cdot 2NaBO_2$), will answer.

I regard the metaborates as the normal compounds, and shall speak of them simply as borates. According to this view, borax might be regarded as a **basic sodic borate**.

204. **Baric chloride**, added to moderately strong boric solutions, precipitates (white) **baric borate**, ($Ba2BO_2$), soluble in acids and in **ammonic salts**. The constitution of the precipitate is liable to vary with the temperature and composition of the boric solution.

205. With **calcic chloride** the deportment corresponds to **204**.

206. If **turmeric paper** be moistened with a boric solution that has been decomposed by an acid, (HCl), and then dried at a gentle heat, (212° F.), a peculiar **red-brown color** is produced.

207. If a boric solution be evaporated to dryness and decomcomposed with a few drops of sulphuric acid, the residue will contain **free boric acid**. If this residue (or other dry boric acid), be drenched with **alcohol**, and the latter set ablaze, the flame will be mantled with a **yellowish-green color**, that may be made more distinct by blowing out and relighting. *Copper* or *chlorine*, if present, may mislead by producing a similar display, and much care should be observed in deciding upon the presence or absence of borates, as scarcely any of their deportments can be regarded as distinctive.

Hydrofluoric, or Fluorhydric Acid, (HF).

The student should not attempt to manipulate this acid until he has become theoretically acquainted with its chemical and physiological effects. Its vapor is excessively corrosive to organic structures, glass, porcelain and nearly all metals, and therefore must not be allowed to escape into occupied apartments. In general, it is best to defer experiments with this compound until after considerable experience has been acquired in the use of milder reagents. Of its salts, (**fluorides**) those of **calcium**, (CaF_2), **sodium** (NaF), or **mercury** (HgF_2) may be used.

The operations should be conducted in vessels of *lead*, *gutta-percha* or *platinum.*

208. Place one drop of strong H_2SO_4, on a sheet of **lead** or worthless **glass** and cover it with a few grains of some powdered fluoride, as **fluor spar**, (CaF_2). Place a slip of **glass** upon the mixture and lay the whole aside for half an hour in a warm place. When the parts are separated and washed, the glass will be found corroded by the solvent action of the liberated HF, in combining with the silica of the glass to form **silicon fluoride**, (SiF_4). Etching in design may be done by coating the glass with wax and tracing the desired lines through it with a suitable point. The wax resists for a considerable time the action of the HF and thus protects the glass except where the lines are traced.

209. **Baric chloride** added to fluoride solution gives a white, bulky precipitate of **baric fluoride**, (BaF_2).

210. **Calcic chloride** precipitates translucent and gelatinous **calcic fluoride**, (CaF_2).

Arsenic and Arsenious Acids.

The deportments of these are given under *Bases of the Second Group*, because in qualitative analysis they are found by the process for bases. They may also be eliminated by the general process for acids.

Oxalic Acid, ($H_2C_2O_4$).

Ammonic oxalate, $(NH_4)_2C_2O_4$, may be used.

211. From not very dilute alkali oxalate solutions **baric chloride** precipitates (white) **baric oxalate**, (BaC_2O_4), soluble in *dilute acids*, (*oxalic* included), *ammonic chloride* and in *many organic salts.*

212. **Calcic chloride** precipitates (white) **calcic oxalate**, (CaC_2O_4), soluble in HCl, but nearly insoluble in oxalic or acetic acid. (See 220).

213. From a solution containing even a slight trace of the oxalic radical, either free or combined, excess of **lime water** ($Ca2HO$), causes its complete separation as **calcic oxalate.**

Tartaric Acid, ($H_2C_4H_4O_6$).

Solution of "**Rochelle salt,**" ($KNaC_4H_4O_6$), will answer.

214. **Baric salts** precipitate (white) **baric tartrate,** ($BaC_4H_4O_6$).

215. **Calcic salts** give **calcic tartrate,** ($CaC_4H_4O_6$), soluble in acids and to some extent in ammonic salts.

216. To a strong tartaric solution add a drop of **ferric chloride** and then excess of **ammonia** to show that tartrates may prevent the precipitation of *ferric* base. Tartrates also prevent the precipitation of several other bases.

217. Tartrates are to some extent *reducing agents.* Salts of the noble metals are first precipitated as **tartrates** and then slowly reduced to **metallic state.** By heat the reduction is more rapid. Prepare, as in **215**, a very little calcic tartrate and after pouring away most of the filtrate add some **ammonic hydrate** and a very small crystal of **silver nitrate.** If the test-tube be then very slowly and gently heated, a brilliant coating of **metallic silver** will be deposited. By using a weak silver solution and heating rapidly, the reduced metal assumes the form of a *dark,* pulverulent *precipitate* without lustre.

218. **Lead acetate** precipitates (white) **lead tartrate,** ($PbC_4H_4O_6$).

Several varieties of tartaric acid and tartrates are known.

Citric Acid, ($H_3C_6H_5O_7$).

Solution of **potash citrate,** ($K_3C_6H_5O_7$), will be suitable.

219. **Baric chloride** in sufficient quantity precipitates **baric citrate,** ($Ba_32C_6H_5O_7$), soluble in citric acid and in alkaline citrates. **Heat** promotes the reaction, and the precipitate thus formed is less soluble than when produced in the cold.

220. **Calcic chloride,** by **boiling,** precipitates **calcic citrate,** ($Ca_32C_6H_5O_7$), soluble in acetic acid. (See **212**).

221. **Silver nitrate** throws down (white) **silver citrate** ($Ag_3C_6H_5O_7$), which scarcely **darkens on boiling.** (See 217).

222. **Lead acetate** is precipitated as white **lead citrate,** ($Pb_32C_6H_5O_7$), if the citrate be added to the lead solution; otherwise the reaction will not always take place, as the precipitate is freely soluble in many citrates and other salts.

Citric acid and alkali citrates are remarkable as being *solvents* of many otherwise insoluble compounds.

ACIDS OF THE THIRD GROUP.

Acids of this group are precipitated by **silver nitrate** but not by *baric* or *calcic chloride.*

Hydrochloric Acid, (HCl).

Use **sodic chloride,** ($NaCl$).

223. **Silver nitrate** precipitates (nearly white) **silver chloride** ($AgCl$), soluble in *ammonia*, but insoluble in *nitric* or other *acids.* (See 3).

224. Solution of **mercurous nitrate** (Hg_22NO_3), gives a white precipitate of **calomel** (Hg_2Cl_2).

225. If a chloride solution be added to a moderately strong solution of **lead acetate,** the latter is precipitated as white crystalline **lead chloride** ($PbCl_2$), soluble in **much water.**

226. If a chloride be heated with strong H_2SO_4 and a little **black oxide of manganese,** (MnO_2), free **chlorine** will be liberated, and may be recognized by its odor or color, or by its **bleaching action** upon a slip of litmus-paper. (See 233). A strong solution should be used.

Hydriodic Acid, (HI).

Use **potash iodide,** (KI).

227. **Silver nitrate** throws down (cream-colored) **silver iodide,** (AgI), **not** soluble in ammonia nor in acids.

228. **Strong** H_2SO_4, **red, fuming nitric acid,** or **chlo-**

rine water, added to an iodide solution, liberates violet vapor of free iodine.

229. Starch paste, with a few drops of weak chlorine water, forms a blue compound of starch with iodine.

230. Lead acetate precipitates (yellow) lead iodide (PbI_2).

231. Mercuric chloride, in proper proportion (see 24), gives (red) mercuric iodide, (HgI_2).

Hydrobromic Acid, (HBr).

Use potash bromide, (KBr).

232. Silver nitrate throws down (yellowish-white) silver bromide (AgBr), slowly soluble in ammonia, but not in acids.

233. A bromide solution treated with H_2SO_4 and MnO_2, as in 226, liberates brownish-red vapor of free bromine. Use a strong solution.

234. Mix a bromide solution with some starch paste and a few drops of weak chlorine water. If a flame-colored mixture is produced, compare with 229.

Hydrocyanic Acid, (HCN or HCy).

Potassic cyanide (KCy), may be used.

Caution.—Soluble cyanides are excessively poisonous, whether swallowed, inhaled, or applied to abraded wounds. Cyanides are decomposed by nearly all acids, the volatile and intensely poisonous HCy being set free.

235. Silver nitrate precipitates (white) silver cyanide, (AgCy), slowly soluble in ammonia, but insoluble in dilute acids. Soluble in hot, strong nitric acid; also in excess of KCy.

[Before applying the two following tests to an unknown solution, test it for ferrocyanides and sulphocyanates by Fe_2Cl_6, (89 and 91), and for ferricyanides by $FeSO_4$, (83), as those bodies, if present, would give the reactions described.]

236. If to a cyanide solution there be added potash hydrate, ferrous sulphate, a drop or two of ferric chloride and excess of hydrochloric acid, the compound known as "Prussian

blue," (**ferric ferrocyanide** = **Fe_23Cfy**), will be formed. If a very slight trace of cyanide was originally present the color may not be very intense and may remain wholly in solution.

237. Select two watch-glasses of about equal size. In the first place a single drop of yellow **ammonic sulphide**, ($2NH_4S$). In the other place some of the cyanide solution with dilute H_2SO_4. Invert the first glass upon the second and let it remain for a few minutes at a slightly elevated temperature. Before the condensed moisture in the upper glass has had time to run down it is removed and mixed with a single drop of dilute **HCl**. If the experiment has been carefully performed, the liberated **HCy** has been absorbed by the drop of sulphide and converted into **ammonic sulphocyanate**, (NH_4CyS). A drop of dilute solution of **ferric chloride** added to it should give a **blood-red color.** The red color of **ferric sulphocyanate**, (Fe_26CyS), is destroyed by **mercuric chloride.**

238. To test for **cyanides** in the presence of **ferro-** or **ferricyanides**, or **sulphocyanates**, or any similar cyanogen compounds that are not true cyanides, proceed as in 237, using **tartaric acid** in place of the dilute H_2SO_4. In every other respect proceed throughout as in 237. I have found no other cyanogen compounds, except true cyanides, that give the above reaction.

[Finally, it must be borne in mind that **HCy** may have been previously present and yet, owing to its volatility and its strong tendency to decomposition, it may have entirely disappeared. Furthermore, it should hardly be considered impossible for organic nitrogenous mixtures to exist sometimes under what might be called ordinary conditions, that might yet be conditions favoring the formation of cyanagen (**CN**), *de novo*].

Sulphocyanic Acid, (HCyS or HCNS).

Soluble sulphocyanates are poisonous.—Use **KCyS**.

239. **Silver nitrate** gives (white) **silver sulphocyanate**, (**AgCyS**).

240. **Copper sulphate** gives (black) **copper sulphocyanate**, (**Cu2CyS**).

241. **Ferrous salts** give no precipitate nor change of color.

242. **Ferric salts** give a deep **blood-red** solution of ferric

sulphocyanate, ($Fe_2 6CyS$). Mercuric chloride decolors the solution.

Hydroferrocyanic Acid, ($H_4FeC_6N_6$ or H_4Cfy).

Ferrocyanides of harmless bases are not poisonous. We may use a solution of **potassic ferrocyanide**, (K_4Cfy).

243. **Silver salts** give (white) **silver ferrocyanide**, (Ag_4Cfy).

244. **Lead acetate** gives (white) **lead ferrocyanide**, (Pb_2Cfy).

245. **Mercuric chloride** precipitates (white) Hg_2Cfy, which become bluish.

246. **Copper sulphate** throws down a **red-brown** precipitate, (Cu_2Cfy).

247. **Ferrous sulphate** gives a precipitate which at the first instant is white, but immediately begins to change to blue. (First **potassioferrous ferrocyanide** = K_2FeCfy,—and finally **ferric ferrocyanide** = Fe_4Cfy_3).

248. **Ferric chloride** gives immediately the fine pigment "**Prussian blue**," (Fe_4Cfy_3).

Hydroferricyanic Acid, ($H_6Fe_2C_{12}N_{12}$ or H_6Cfdy).

We may use **potassic ferricyanide**, (K_6Cfdy). Try the following:

249. **Silver**, red-brown.—Ag_6Cfdy.

250. $HgCl_2$, no precipitate.

251. **Copper**,greenish—Cu_3Cfdy.

252. **Ferrous salts** give a dark blue precipitate of **ferrous ferricyanide**, (**Turnbull's blue** = Fe_3Cfdy). Compare 247 and 248.

253. **Ferric salts** give **no** precipitate, but instead, a more or less **dark-colored solution**.

Hypophosphorous Acid, (H_3PO_2).

Hypohosphites have *reducing power* in a tolerably high degree. They do not precipitate **baric** or **calcic** salts, therefore their acid is excluded from the second group. We may use a solution of **calcic hypophosphite**, (CaH_42PO_2).

254. **Silver nitrate** is first precipitated (white) as *silver hypophosphite*, (AgH_2PO_2), and finally passes by reduction to dark-colored or black *metallic silver.*

255. **Meruric chloride** gives first **calomel** (Hg_2Cl_2), and then gray **metallic mercury.**

Tannic Acid, ($C_{27}H_{22}O_{17}$).

This compound, known also as **tannin** or **gallo-tannic acid,** and its associate **gallic acid,** ($H_3C_7H_3O_5$), are found in the tincture or infusion of galls, used as a test for iron salts and gelatine. By heating either of these bodies to 400° or 500° F., they are converted into **pyrogallic acid,** ($C_6H_6O_3$), known also as **pyrogalline,** as its acid properties are very feeble.

256. "The three acids are distinguished by their action upon the salts of iron. With pure **protosulphate of iron,** ($FeO.SO_3$), neither *tannic* nor *gallic acid* gives any reaction, but **pyrogallic** acid gives a deep **indigo blue solution**; whilst with **persulphate** ($Fe_2O_3{\cdot}3SO_3$), or **perchloride** (Fe_2Cl_6), of iron, the two former give a **bluish-black precipitate,** and pyrogallic acid gives a **bright red solution.**"—*Bloxam.*

257. With tannin, **solution of glue** gives a light flocculent precipitate essentially similar to leather. A piece of **parchment** or other **animal membrane** added to a solution of tannin slowly abstracts all the latter by combining with it to form *leather.* **Gallic acid** is not precipitated by gelatine. The *tannins* extracted from different vegetable astringents are probably not identical. (See *Tannin*, in U. S. Dispensatory).

EXERCISES IN DRY TESTING.

If the student has but a short time to give to the work of chemical testing he is advised to omit these exercises for the present and pass to 269, *a*.

He will need the following additional articles:

Apparatus :—

Hard-glass tubes, open at both ends, (broken test-tubes are best).—Closed tubes of hard, infusible glass, (about three inches long, and ¼ inch in diameter).—A good mouth blow-pipe.

Reagents :—

Some pieces of good compact charcoal, (that from willow wood is generally preferred). — Powdered borax. — Ammonio-sodic phosphate, (known as microcosmic salt, = $Na_2NH_3PO_4$).—Dry sodic carbonate.—Sodio-potassic carbonate, ($NaKCO_3$).

258. A few grains of a **dry chlorate** treated with strong H_2SO_4 in a **dry** test-tube, and **gently** warmed, gives off **chlorine oxides** that **explode** with **sharp detonations.** Use very small quantities.

Try the other reactions described in 273.

259. Test the action of different **acids,** strong and dilute, hot and cold, upon all the common **metals** and make notes of the results.

260. Make the experiments in **open tubes,** as mentioned in 271.

261. Try the experiments with **closed tubes,** as indicated in 272.

262. Perform all the experiments described and indicated in 274.

263. Test the effect of **fusing the oxides or salts** of the common metals by the **blowpipe** on **charcoal** with **sodic carbonate,** and make a careful record of the results.

264. Many of the experiments in 262 and 263 can be made on a **loop of platinum wire** or upon a **slip of platinum foil,** either under the blowpipe or in the open lamp-flame.

265. Learn to produce at will the **oxydizing flame** and the **reducing flame** of the blow-pipe (Bp). Observe also that corresponding parts exist in an ordinary lamp-flame. An oxydizing flame (o.f) is one that contains or is exposed to excess of air. A reducing flame (r.f) is one that contains excess of unburnt

carbon. The oxydizing and reducing zones of lamp-flames are defined in the same way. A few minutes of thoughtful experiment will do more to explain this important part of blow-pipe manipulation than pages of minute description. Only remember that the oxydizing point is the part exposed to the air or blast, while the reducing point is just the reverse. It will soon be observed that the best o.f is one having a pointed, nonluminous core, and produced when the Bp point is held just within the flame, while the opposite conditions give the best r.f.

266. Deportments in o.f and r.f are conveniently studied by fusing beads of **borax, (bx)**, or of **ammonio-sodic phosphate, (ph)**, upon a small round loop of **platinum wire** and charging them more or less strongly with the body to be tested, observing the effects while hot (h) and when cold (c). When transparent colors are produced it is necessary to use quantities small enough to allow of their being distinctly seen. The *beads* should be made on loops of about $\frac{1}{10}$ of an inch in diameter. The loop is wet with distilled water and dipped into the powdered **bx** or **ph** and then fused to a transparent bead, after which it is touched with the powdered body to be tested and again fused in o.f or r.f, as desired. The beads are easily removed by cracking with a smart blow between hard surfaces. The loop must be washed clean before each test. Some of the more characteristic deportments are given below, using abbreviations when the results are limited to special conditions:

a. **Beads colorless** or else **white-opaque**:

Silica—Alumina—All earths, with **bx—Lead oxides,** o.f—**Tin oxides—Zinc oxides,** o.f—**Cadmic oxides,** o.f—**Antimony oxides,** o.f—**Bismuth oxides,** o.f—**Manganese oxides,** r.f—**Copper oxide,** with **bx,** r.f, h.

b. **Beads yellow** or **brownish**:

Ferric oxide, o.f, h—**Nickel oxide, ph.—Lead oxide, bx,** o.f, h.

c. **Beads red**:

Ferric oxide, o.f, h—**Cuprous oxide,** r.f, c—**Nickel oxide,** with **bx,** r.f—**Chromic oxide, ph,** o.f.

d. **Beads violet** or **amethyst:**

Manganic oxide, o.f—**Titanic oxide,** r.f, c—**Nickel oxide, bx,** o.f, c.

e. **Beads blue:**

Copper oxide, o.f, c—**Cobalt oxide.**

f. **Beads green:**

Copper oxide, o.f, h—**Chromic oxide,** c.

g. **Beads gray-opaque:**

Oxides of silver, lead, zinc, cadmium, antimony, bismuth and **nickel, r.f,** c.

[Mixtures in various proportions will of course modify the above reactions].

267. **Flame tests.**—The **alkali metals** are readily distinguished by the **color** they impart to nonluminous **flames.** To apply the test, a loop of **Pt** wire, or the corner of a **Pt** foil is moistened with the substance to be tested and then held in a nonluminous flame. The **yellow color** produced by **sodic** compounds is readily distinguished from the **violet** of **potassium** or the **crimson** of **lithium.** The color produced by a very small amount of sodium is so intense as to hide the color reaction for potassium. To obviate this trouble we may completely sift off the yellow soda rays by simply viewing the flame through a piece of **blue cobalt-glass.** By this means the potassium flame is plainly seen in presence of any amount of soda.

268. **Silicates** that are insoluble in water or acids, as well as many other insoluble compounds, may be rendered either entirely soluble in water, or else partly soluble in water and the balance soluble in acids, by the process known as **fluxing,** which consists in *fusing* at a bright red heat for a few minutes with about four parts of **sodic carbonate** or of **sodapotassic carbonate.** A platinum crucible should be used. A small fluxing can be done on a platinum foil or even wire. After fusion, treat with hot water and filter. The filtrate should respond to tests 203 and 204.

Art. 2.—Deafness, or Impaired Hearing.

By W. R. AMICK, M. D., Cincinnati, O.

In speaking of diseases of the ear, it will not be out of place to look for a few moments at some of the different views that were held, and methods that were resorted to, when aural surgery was in its infancy. At that time very little was known about the anatomy of the ear, and the instruments used were crude and imperfect, compared with those used at the present day. Applications were made, and even operations performed, without any examination whatever. As early as 570 B. C., Alcmaenon knew there was a passage that led from the middle ear to the throat, as he stated that goats breathed through their ears. Besides this passage, the anatomy of the ear did not go beyond the membrana tympani or ear drum. Galen, a few centuries later, made considerable advancement in the anatomy of the ear, and as late as the sixteenth century was considered the best authority on the subject. During the dark ages, examinations upon the human subject were prohibited by the church, so that there was no advancement made in the anatomy of the ear for nearly fifteen hundred years. Valsalva, who flourished in the early part of the eighteenth century, contributed largely to the advancement of the anatomy of the ear; it is stated that he devoted more than sixteen years of his life to the subject, and dissected more than a thousand heads.

For a pain in the ear, Asclepiades recommended oil to be dropped into it, in which three or four cockroaches, or an African snail, had been cooked. Archigenes gave the following method for removing a foreign body from the ear of a child: Seize it by the feet and give it a vigorous shaking, while an adult was to be laid upon the table, and the leaf opened and shut with a slam. Arcularius gives the following peculiar advice for removing a foreign body from the ear: Take and cut off the head of a lizard, place it in the ear, leaving it there for three hours; at the end of this time it is to be removed, when the particle will be found in its mouth. It is stated that Horst used to heal deafness by using water that had been distilled over a young mouse having no hair. Lusitanus gives a quaint explanation of the practice of cutting off the ears of thieves. He said that such treatment rendered them incapable of propagating their kind, and hence no more thieves could be born of them. Helmont casts away all of the prevailing opinions in regard to the cause of deafness, and says it is the work of the devil or some other evil spirits.

Von Tröltsch quotes a case in which a woman could only hear her husband while a servant was beating a drum.

Helmholtz fixes the lowest limit of musical sound at sixteen vibrations per second and the highest at thirty-eight thousand. This gives about eleven octaves for the range of the ear. Practically, only about seven octaves are used. A sound that is audible to one person may be inaudible to another. Some ears cannot distinguish the finer sounds, but are very sensitive to the lower ones. Short, quick vibrations of sounds, which produce the finer tones, are generally recognized sooner than the low or octave ones. The shrill whrr of the locust is much more audible than the sound produced by the wind through the trees.

Steele reports the case of a person entirely insensible to the higher tones of the voice, but very sensitive to the lower ones. She could not hear a dinner bell, but heard the noise that was made by setting it down on the shelf. A few weeks ago we treated a young man that was similar to the case first mentioned. His hearing was defective for the finer tones. He stated that he had never heard a bird chirp or sing that had a finer tone than the cawing of a crow. He was placed beside a cage containing a canary bird, his head within two inches of the wires, yet he could not hear it sing. He could not hear the sixteen upper notes of a seven and a third octave piano. He could hear the jar of the key upon the cushion, but could not hear the sound produced by the vibration of the strings. He could not hear the sound of a small bell though standing by it, yet he heard the sound that was produced by picking it up and setting it down upon the table. His hearing power for coarser sounds was acute. This was tested in the following manner: He was placed by the side of a person with normal hearing. The base keys of a piano were then touched producing a slight vibration of the strings. He was able to recognize sounds when his companion failed to hear any thing. The trouble in this case was congenital and no doubt due to a want of development of the finer branches of the nerves of Corti. The mucous membrane of the nose was very sensitive, and he was frequently troubled with sub-acute catarrh. At such times his general hearing was more or less impaired. Treatment with the eustachian catheter and air balloon had a good effect during these attacks. We might further remark that he was passionately fond of music.

There was a notion prevalent in England, in Shakespeare's time, that poison poured into the ear was as dangerous as if taken into the stomach; and from this, no doubt, originated the idea that a diseased ear should not be interfered with. It is scarcely necessary to say that the above statement is incorrect, yet there are people at the present day who object to the treatment of a diseased ear, because, they say, the stopping of the discharge will cause other and more serious trouble. The reverse of this is the truth. For instance, a person is exposed and "catches cold"; following this he will have a sore throat and in a short time pain in the ear. In a few days the throat trouble may be better, but there will be a discharge, or running as it is sometimes called, from the ear. This discharge is due to an inflammation in the cavity of the tympanum, the drum membrane being perforated. Those who advocate the continuation of the discharge say: let it alone, for it is necessary to carry off the impurities of the blood, and if it was stopped it might affect the brain. *The discharge is due to an inflammation, and the longer it continues, generally, the more damage it will do.*

There is no pathological experience on record which can sustain the quite common assertion, that it is dangerous to stop a discharge from the ear, (*Roosa*). *But on the other hand there are numerous cases on record where disease of the brain has occured from the extension of a neglected suppuration of the ear.*

When disease of the brain occurs, the discharge is less copious or may entirely cease. Persons and even physicians, mistaking the effect for the cause, have been led to suppose that the sudden "drying up" of the discharge produced a metastasis to the brain, a notion that is false and unsupported. The danger in a discharge from the ear is in letting it alone, for it does not generally remain confined to any one structure. It may destroy the chain of bones that extend from the drum membrane to the middle ear, and then hearing is permanently impaired. It may extend to the mastoid cells, and not unfrequently to the brain itself, causing death by inflammation of the latter organ.

Diseases of the middle ear are much more frequent than those of either the external or internal portions. In a report of 2271 cases, 1769 were diseases of the middle ear. Cold and scarlet fever are the two principle agents in producing diseases of the middle ear. Lighthill says that scarlet fever is a very prolific source of impaired hearing, and is not only very destructive to the organs of hearing, but is said to be the cause of one-third of the cases of deafness.

There is a notion prevalent that when the drum membrane is destroyed or even perforated, the hearing is entirely lost. That this is not true we will refer to case number two. We have treated a number of cases in which the membranæ tympani have been entirely destroyed by disease, yet they were greatly benefitted, and after the discharge had been stopped, had very fair hearing. It is not generally supposed by persons having a discharge from the ear, that the drum membrane is either perforated or entirely destroyed. But from the anatomy of the ear it makes it impossible for a person to have a discharge coming from a disease of the middle ear to pass out through the external auditory canal without a giving way of the drum membrane. But a perforation in this membrane does not signify that hearing will be permanently impaired, for frequently, by timely and judicious treatment, the cause can be removed and the perforation will close up, leaving the hearing in some cases almost if not quite normal.

Vertigo and dizziness are very common symptoms in certain diseases of the ear, yet physicians frequently treat such cases for some supposed cerebral trouble. It would not elevate a physician in the estimation of his patient, after being treated for weeks for some supposed brain trouble, suffering all the time from noises and a buzzing or ringing sound in the head, so that he was not able to pursue his daily avocation or sleep at night, to consult a specialist and find that his was a case of impacted cerumen, which could be removed in a short time. That such mistakes have been made we cannot deny. This distressing condition of tinnitus aurium, or noises in the ear, demands careful consideration. Physicians have prescribed for patients suffering with tinnitus aurium without giving the desired relief. They may have supposed that it was partially caused by ear trouble, and ordered some oleaginous mixture to be used, yet the trouble would continue and the patient become despondent and morose. Patients have become so despondent from this trouble that they have sought relief by committing suicide. Dr. Schwartze reports the case of a young man in whom epilepsy seemed to be caused by disease of the middle ear. An operation was performed, perforating the mastoid process, after which he had no more severe seizures, his general health being much improved.

The number of cases that are considered incurable at the present time, is much smaller than formerly. Patients are beginning to realize the fact that a discharge that has existed for ten years cannot be stopped in as many days. There are a great many patients who are not willing to submit to a protracted course of treatment, either because they cannot spare the time, or are unable to do so, but as a rule, those who do, find that they are well repaid for the time thus spent. Many very happy results have been obtained from a continued course of treatment, which in the first month or two apparently availed nothing. Parents frequently make a grave mistake with their children, by allowing a discharge to continue from the ear for weeks and months without any effort to stop it. They say the child is too small to have anything done for its ears, besides the family physician said, "let it alone for it will out-grow it." In a great many cases there is a seeming indifferance and negligence on the part of the parents in allowing a disease to continue, and destroy certain portions of the ear that will prove a permanent injury to the organ of hearing. Simply because it is a child or an infant does not disprove the fact that its organ of hearing is just as liable to be destroyed by disease as that of an adult. Ear diseases in children are just as susceptible to treatment as they are in older persons. Judicious and proper treatment not only relieves the parents of a great deal of trouble, but is of paramount importance to the child, not only in relieving it of pain, but of that greater misfortune, deafness.

The organ of hearing plays an important part in regard to the external manifestations of the mind. Take, for instance, the school-boy, who is full of life and activity. His face is radiant with smiles and his countenance has a bright and pleasing appearance. But from some cause let his hearing become impaired and notice the result. His teacher will say that he is stupid and dull, and does not learn as fast as his classmates. He will sit and stare at his book or around the room in a listless manner, and frequently when spoken to does not reply, but simply laughs. Many a poor boy has had to suffer punishment at the hands of his teacher, when he was not in the least to blame. Charley S— was as bright a lad as any in his class. He had no trouble in preparing his lessons, and was equal in mental vigor to any of his comrades. But after a while a change became apparent. Instead of bright and cheerful, he appeared dull and stupid. His teacher complained to his parents, stating that he was not progressing as he should, and would not be able to pass into the next grade at the end of the term. He did not answer when spoken to unless looking at the speaker, and then frequently would only laugh. He accidently received an injury to his right eye and came under my charge for treatment. His mother made the above statement, and said he was troubled with a discharge from his ears. Then the boy's condition of stupidity could easily be explained. After his eye recovered I treated him for his ear trouble. As his hearing improved you could see a change in his countenance and actions, and now as his hearing is about normal, his mother remarked: "Charley is more like himself."

There is nothing that will produce that apparent degree of stupidity outside of that class of disease known as nervous, with the blank expression of the face that is frequently concomitant with impaired hearing. Yet there are but few cases of middle ear disease that cannot be improved by treatment. No person, who places any value upon his hearing, should say that his was a hopeless case without first consulting a physician who was able to treat diseases of the ear.

Case I.—Lewis M——, æt. 30. Plumber. Always enjoyed good health. Twelve years ago he was working and got very warm. He imprudently went to a hydrant and let a stream of cold water run upon the back of his head and neck. The next day he had "caught cold," and had a sore throat, followed with pain in both ears, being worse in the left. Five days later a discharge made its appearance in the left ear, which has continued ever since. Had pain in the right ear but no discharge. Hearing was greatly impaired. On examination found the drum membrane entirely destroyed in the left ear. The cavity of the tympanum was red and granular. There existed a purulent discharge, so free, that if the ear was not cleansed three or four times a day, it would run down over his face. The eustachian tube was closed, and an inflammation existed around its orifice. Could not hear the watch tick when lightly placed on the auricle. The membrana tympani was thickened and of a dull, granular appearance in the right ear. There existed a chronic inflammation of the mucous membrane of the cavity of the tympanum in this ear. The eustachian tube in this ear was closed. Could not hear the watch tick without moderately firm pressure was made, and only heard conversation when very loud. There existed some inflammation in the external auditory canal of the right ear, also some cerumen. The cerumen was removed and the inflammation treated with astringents. After the ears had been cleansed the eustachian catheter and air bag was used, inflating the ears daily. In the left ear there was a whitish membrane surrounding the inner portion of the canal, which was removed with tinct. iodine, applied with a small brush. Astringents and a solution of spts. vini rect., iodoform and amyl. glyc. were used. Under this course there was a gradual improvement, the discharge ceased and his hearing was very much improved, so that he could hear the watch twenty two inches from the left, and eighteen inches from the right ear.

CASE II.—Gustie M——, æt. 19. General health good. The trouble in this case began when she was eight years old, and supposed to be caused by irritation of the drum membranes and external auditory canals, by picking them with hair pins. On examination found that both drum membranes were entirely destroyed, and a purulent discharge existing, which was more prouse in the left than in right ear. In the external canals there had existed an inflammation so that thick dark crusts had formed. Beneath these the integument was destroyed, and a granular surface presented itself. Just internal to these crusts the canal was lined by a whitish membrane which was very adherent. Hearing was greatly impaired. The watch was heard only three inches from the right, and on contact with the left ear. The treatment consisted first in the application of amyl. glyc. and ol. olivæ to remove the crusts. The ears were kept cleansed and the granulated surfaces treated with arg. nit. and cupri sulph. The middle ear was treated by inflation, or rather air was driven through to free the mucous surfaces from the discharge, and then astringents were applied. Under this treatment the inflammation passed away and the discharge ceased. She now hears the watch twenty four inches from the right, and twenty inches from the left ear.

CASE III.—Amelia K——, æt. 10. Had scarlet fever fifteen months ago. The throat affection extended up the eustachian tubes to the middle ear and produced a condition of chronic inflammation. Hearing was impaired so that she could not understand ordinary conversation. Test by the watch could not be made.

There was cerumen in both canals, which was removed. The membranæ tympani were of a dull color and considerably sunken, and a line of redness existed along the handle of the malleus. Treatment consisted chiefly in Politzer's method of inflation, using some astringent solution in the external auditory canals, after the cerumen had been removed. Her hearing began to improve from the first treatment, and in a week she heard as well as she ever did.

CASE IV.—John H——, æt. 30. Has had impaired hearing for about three years, but could hear moderately loud talking. Last September the trouble got rapidly worse, and since that time he could not understand anything unless spoken in a very loud tone. Said that he "could not hear it thunder with his left ear." With the left ear he heard the watch with firm pressure, with the right on contact. Complained of a "buzzing or ringing" in his head. An examination revealed cerumen in both ears. After it had been softened by applying a solution of soda bicarb., the cerumen was removed from the right ear by means of the syringe and forceps. The canal in the left ear was contracted until it was only about a line and a half in diameter. It took more than a week to remove the cerumen from this ear, but when once accomplished he heard the watch two feet off immediately afterwards. After inflation had been practiced for a week, his hearing rose to three feet. The drum membranes and external canal were considerably reddened and inflamed by the presence of the cerumen. This inflammation was treated with a five grain solution of arg. nit. and soon passed away. Stated that he "had been to see a physician in reference to his ear trouble, and that he had probed them, which made his hearing worse."

CASE V.—Lewis F——, æt. 13 months. Had been having fever, was restless and crying a considerable portion of the time for several days. His parents supposing it to be colic, gave him the usual domestic remedies, soothing syrup, Mother Hubbard's cordial, etc., without producing any relief. After this condition had existed for two or three days, a discharge made its appearance in the left ear. The child was easier after this but still restless. The discharge was very free, so that the entire auricle and integument all around the ear became inflamed and excoriated. It got some of the discharge in its eyes, which produced a purulent inflammation in them. The treatment consisted first in keeping the ear as clean and free from the discharge as possible. As there was a very offensive odor, a solution of ac. carbol. was used four or five times a day. Then the following solution arg. nit., gr. clx. ad. aq. dest. ℥j., was used every alternate day by being brushed over the inflamed surface. In the interval the eustachian tube and middle ear were treated with a ten grain solution of zinc sulphate. A soft rubber aural syringe was used, forcing the solution through the tube. Under this treatment the trouble passed away in about ten days. The perforation in the drum membrane closed, leaving a healthy looking membrane. The trouble with the eye was treated with a five grain solution of sulphate of zinc and passed off in a fortnight.

CASE VI.—Thomas B——, æt. 60. Has had impaired hearing for the last twenty-two years. His trouble began by being exposed to a damp, cold atmosphere, in which he got very chilly. He had sore throat, which was followed by pain in both ears, being worse in the left. Never had any discharge from either ear. Never had any treatment for them, as he supposed nothing could be done, except some drops at first, which were prescribed by his family physician. Has frequently been troubled with noises in the head, which would sometimes prevent sleep, being worse at night. On examination found both drum membranes sunken, leaving a prominent ridge along the handle of the malleus. The membranes had a dull, lack lustre appearance. The triangular spot of light could not be seen. Hearing power with the left ear, three inches; right ear, five inches. When the eustachian catheter was first used but a very small amount of air could be forced into the cavity of the tympanum, thus showing that there was obstruction in the tubes, which in all probability was due to a chronic inflammation and swelling or thickening of the mucous membrane. The sound produced by inflation was dry, consequently astringents were used. After the ears had been inflated, a few drops of a solution of zinc sulphate or plumbi acetat. would be placed in the catheter and forced through the tubes into the middle ear. In these cases phenol sodique appears to have a very good effect. During the course of treatment the following changes were noticed: First, the air passed more freely into the cavity of the tympanum; secondly, the drum membrane was not so deeply sunken; third, the noises, or tinnitus aurium passed away, and last, but not least, hearing was greatly improved, so that he could hear the watch twenty-six inches with the right and twenty-one inches with the left ear. He had no trouble in understanding ordinary conversation.

Case VII.—Frank F——, æt. 33. Had been troubled for a week or two with noises and a ring or humming sound in the head. His hearing was not impaired except during the time when he was troubled with this tinnitus aurium, which was at night. He stated that it did not trouble him very much until after he retired at night, then it would commence and it would be almost impossible for him to sleep. An examination did not reveal anything abnormal in the external canals or with the drum membranes.

He received two treatments with the eustachian catheter and phenol sodique, and has not been troubled any with the noises, since the 8th of July, which is the date of the last treatment.

Art. 3.—Nervorum Erethismus, or Debility of the Nerves.

By Silas W. Fowler, M. D., Delaware, O.

A Paper read before the Delaware County Medical Association.

This form of nerve trouble is readily seen in the many cases of nervous debility which we are not called upon to treat, but frequently are told of in our daily conversations. Nervorum erethismus, or nerve debility, may be applied to the brain as well as the spinal and sympathetic nervous system. Yet one or the other of the systems being primarily involved from the intimate relations they hold to each other, the whole nervous organism becomes involved to a greater or less extent. The forms of nervous debility are numerous and varied, and the agents acting to debilitate are in a manner unlimited. The brain has a proper limit of continued application, as well as the muscles. The many examples of over-stimulated muscular tissue are too familiar to us to occupy our attention at this time; but of over-stimulation of the brain and nervous tissue little or no attention is given until the trouble assumes such a limit as to excite our alarm for the results. As the nervous debility or exhaustion becomes manifested there will be seen more or less excitability and mobility, in proportion to diminution of nerve power. These well ascertained facts can be best studied in the motor nerves as they become weakened from frequent exhaustion. As will be seen, the nerves are more easily thrown into action; though the impulse be weak, the action will not be long sustained, and what is true of the motor nerves is also true of the sensory, and especially of the optic nerve and auditory. When thus weakened by long continued over-stimulation or work, we will see the nervous system becoming alive to the least delicate impressions, and possessing that power of almost preternatural acuteness, yet of comparatively short duration. The mind readily grasps thousands of external impressions, understands laws and principles, as well as taking cognizance of the most extreme delicate impression which to many would go by unnoticed. Thus indicating to the casual observer great mental power and remarkable vigor. Such is not the case, for it is in these cases; from continued application and long continued brain work, that the nervous system and the brain suffers from exhaustion and later from weakness.

Now continue the mental 'strain or labor time after time, and soon the variety of functional nervous troubles, such as headache, dizziness and general inaptitude, will be plainly manifested, and after a short time there will follow deranged secretions and functional disturbance of the different organs. The various forms of stimulants taken and so often demanded are borne with difficulty. When this disturbance is going on there may be a chilly condition over the surface of the body, followed by flashes of heat and perspiration — caused from the excitement and corresponding depression.

Each and all have more or less brain work to perform, and there is a corresponding limit for mental exercise for each and every case. The one possessing wonderful power of endurance; the other, by the least exertion of the mental faculties, brings about well marked symptoms of nervous exhaustion. Thus when investigating for the cause of this nervous debility we should carefully study the influence of mental labor, the susceptibilities of the case and the nutritive changes that are more or less manifested; as well as the character of the headache, which is of a more or less dull character, extending through the entire brain, the peculiar dizziness or vertigo during study; the general inaptitude and the altered condition of the countenance—all show a characteristic anxiety. The untrained muscular fibre when brought into active use soon falls a captive to exhaustion. But though hardened to the arduous duties of every day life, nevertheless demands rest to regain the lost strength or disturbed equilibrium. The same is true of the brain and the nervous system. The untrained or undeveloped mind, be it ever so clear, active and powerful, falls or exhausts prematurely from long continued, deep thought. Still the time of duration in study is of little moment, compared to the power of endurance. The one will perform the mental work with little or no hardship or influence on the nervous system, while the other student will tire and fail in the performance of the same mental work. The one, in a brief space of time, masters from the power of concentration of thought a large amount of mental work. While the other doubles the time and fails because of the lack of power of concentration. In the one there is a proper nutritive action going on, in the other there is not. We witness this in physical endurance. Take two equally trained in the school of the hardships of life; when performing some work the one will fail and tire when the other only begins to feel stimulated, and thus performs the duties without being fatigued or exhausted. In the one the nutritive equilibrium between nutrition and destruction is equal, in the other destruction is the greater.

Mental strength, to a large extent, like many other conditions of the body, may depend on transmission—a large proportion of nervous derangements undoubtedly do come from hereditary predisposition. Thus mental strength we affirm is of a hereditary nature.

We witness the loss of brain power in all classes of society, age, and sex in proportion to the number furnished by each to the army of mental workers. It has been stated often that the larger number is to be found among the males, but the investigators and thinkers being proportionally larger with the latter, as a rule those who show this functional derangement are in this class; but on a more careful examination, we find the number to be equally great among the opposite sex, in proportion as their numbers have laborers in the mental field. The investigation should go beyond those who are known as thinkers or students, to see the examples of brain and nervous debility, or exhaustion, and thus study that large class of society where the whole nervous system is recklessly abused by the varied forms of debauch and over-stimulation. The whole system thus being over-tasked, and especially the nervous, tires, exhausts and weakens from this constant repetition day after day, and thus exhibits the various forms of mental and nervous debility of a purely functional character. Should this be continued for any length of time, there will be a loss of power until prostration is more or less complete, and finally, when going beyond functional derangement, a change takes place and we have a permanent trouble. On a more close examination of these functional nerve troubles we will find there are certain auxillaries that do influence and accompany these derangements to cause the trouble to be more or less destructive; great anxiety in the various branches of business enterprizes, where the mind becomes restless because of uncertainty of affairs, so as to prevent the requisite amount of rest being taken; depressed emotions; anticipated danger or trouble; the ambitious hopes of some delusionary gain, position or fame; unstaple and untenable thoughts dwelling in the imaginary mind; the various forms of domestic variances, and anxiety to retreive a lost fortune or a mis-spent life—all and many more act upon and influence to disturb the proper nutritive change of the nervous system, and thus debilitate it.

Many forms of diseases act in a similar manner, rendering the nervous system less active and, thus causing it to be unable to stand the severe mental taxation as it would do under circumstances more favorable. Thus I am led to think this wonderful abusing of the brain and nervous system, prevents the proper nutritive change and causes the functional trouble primarily. So far as examinations in the various forms are concerned, the pathology is almost wholly if not *entirely* wanting in *debility* or *functional* disturbance of the brain and nervous system.

The exhaustion or debility is not a premonitory symptom of some organic trouble or lesion, but the continual non-nutritive change and the continual capillary distention from the afflux of blood to the brain and through it, together with the excitement, might bring about a change of more or less destructive character, and entirely from the changed condition of the capillaries, and so far as the post mortem goes, no change has been found except where organic change has, or does exist. The chemist and the physiologist as yet have not satisfied themselves or the profession that there is not a non-nutritive action from some abnormal molecular change going on, or taking place in the composition of the nerve structure. The disturbed nutritive equilibrium, *per se*, causing the weakened or debilitated condition of the nervous system, manifests itself by certain distinct, marked symptoms. One of the first to attract our attention after exhaustion or debility of the nervous system commences, is that peculiar irritability of the mind and body, which is never witnessed in a case of a perfectly, or nearly so, healthy condition of the nervous system, or a true physiological condition.

A normal amount of mental labor performed, will stimulate to proper nutritive changes, and the brain power increases in strength and there will be greater nervous endurance. But should, as is too often the case, this wise methodical arrangement be violated and the stimulation carried on to exhaustion, then there will be more or less functional derangement taking place or disturbed nutrition as a result.

The symptoms following this change are only too plain, yet too often passed by, unobserved and not understood, but are classified under the broad head of *nervous trouble.* We have the greatest opportunity to study the primary symptoms in the army of juveniles attending the day schools throughout the land. We will see in the primary stage that peculiar dislike for study or mental work, and not because of a dislike or unwillingness to receive proper mental training, neither for a want of knowledge as to the necessity of a proper mental discipline, but, as was said, from the disturbed nutritive equilibrium or non-nutrition, caused from overstimulation by the *unreasonable, ignorant tutor.* This *automaton* recklessly stimulates the strong, well-nourished brain and nervous system and the impoverished one all alike. Instead of most carefully investigating for the cause and then applying the giant remedial agent, rest and quietude together with the expected assistance, he pushes the frail mental bark on, thus increasing the incipient trouble, rather than curing it, and finally brings about a premature decay of mental capacity. Soon following this dislike for study or mental exertion, if the mind is forced to undergo more or less active labor, we will see a confusion of ideas; instead of being kept in the bounds of reason, it wanders off into the fancy fields of imagination. This is a loss of power to clearly understand and to concentrate; continue the exhaustion time after time, as is frequently done, and it results in a nutritive change which will cause a functional disturbance of a more or less permanent character. But on the other hand, should the dislike for study and the confusion of ideas, as well as the debilitated condition of the whole nervous system, be overcome by taking proper rest, a sufficient amount of nourishment, and at the same time a requisite amount of mental exercise, to strengthen and tone up the brain, then instead of a short mental application confusing and weakening, we will see it take long and continued mental labor and fatigue to thus weaken or debilitate. It is from expecting and requiring every student to perform and accomplish the same mental labor that we are made to witness so many wrecks in the harbor of mental activity. There being no two equally capable of the same mental endurance, one will become restless and uneasy; the mind loses the power to retain on the canvass the impressions from external influence, and from this nervous disturbance the physical disturbance is soon remarkably manifested, which is annoying to the physician and painful to the sufferer. There will be a restless and disturbed repose; sleep no longer restores to the exhausted fibre the needed strength; functional derangement is soon experienced in the different organs; the feverish condition tells us of vaso motor disturbance—these are a few of the symptoms indicating the nervous debility in the primary stage. But soon we have more marked troubles, such as the various forms of neuralgia, not of a mechanical origin, and resulting from the same disturbed nutritive action, and according to the law of eccentric phenomena, these sensations which are impressed on the brain are referred to the peripheral termination of the sensative nerve fibres. From lowering of the nerve force and, indirectly, the vaso motor power, we see neuralgia, rheumatism and the remittent forms of fevers; night sweats, and nocturnal prostration, as a rule manifesting themselves nocturnally. Thus it is when tonics and the proper nutrition is taken, the action is to strengthen and build up, and thus prevent the exhaustion. That the system should be thus influenced at night more than during the day, is from the incapability of resisting the impression while the body is in a quiescent state.

The nerve debility may manifest itself in the form of functional paralysis, and when the paresis affects the brain, it may extend to any and all of the cerebral nerves. The extent of danger will depend on the debility or weakened condition as well as on the previous vigor and condition of the nervous system. This form of paralysis will and does recover by taking proper rest and remedial agents. But in the cases of lesion or organic trouble, little or no help can be expected, either from rest or treatment.

In studying these cases of functional derangement of the nervous system, and the results therefrom, the conclusion is: should the nutritive action be long deranged, there may result an organic change in the nerve substance. If there is anything to be done in the way of treatment, to bring about a proper nutritive action, it should be done early, and by so doing prevent subsequent dangers. In diagnosing these troubles there is no great amount of difficulty, especially in the primary stage, if there is a thorough knowledge of the anatomy and physiology of the brain and nervous system. It is in this primary stage that a correct opinion should be found as to the trouble, but I am sorry to say most of the errors are here made.

When the examination indicates the debility is of brain origin, a careful, differential diagnosis will either decide in opposition to, or establish any organic lesion, and thus we will be able to say whether the trouble is purely functional or not.

There may be serious mistakes made by referring these primary symptoms of functional disturbance of the pneumogastric nerve to some derangement of the stomach, liver or other of the abdominal organs. The treatment is thus all directed to the organs only secondarily affected, and the time for affording relief is lost and the sufferer permitted to go unrelieved.

It is most interesting to gain a full and correct history of the advanced stage and carefully study the cases through. The prognosis is generally favorable especially where the injunctions are correctly given, and thoroughly enforced. The patient being so situated as to follow the instructions in every particular.

In the application of remedial agents many will have their own views, and will have equally as many formulas as there are prescribers.

I can safely say, from commensurative signs, that there are certain principles none dare to question. The first and primary object to be secured is rest, *absolute rest*, that by so doing, the exhausted brain and nervous system may be permitted to regain the lost power and vigor; that there may be restored the proper nutritive equilibrium. The quietude or rest should be continued long enough to restore, even if that should be only for a few hours, days, or even weeks. All worry, excitement, anxiety, mental labor, etc., must be most strictly interdicted; in short perfect abstinence from any and all mental work so far as possible. If this cannot be done the greatest principle is violated. The various nerve tonics should be most judiciously administered in conjunction with the rest.—Watching and noting.

Art. 4.—Certain Points in the Symptomatology and Physiology of the Intra-Cranial Organs.

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It is a fact greatly to be deplored that the early symptoms of cerebral disease, unlike those of other bodily organs, are almost invariably overlooked by the sufferers, and permitted to pass uncared for until the time arrives when medical interference is of no avail. While the burden of this negligence must always remain with the unfortunate patient, still it is an undoubted fact that, were medical men generally as prone to seize upon and investigate the obscure cerebral symptoms brought to their notice as they confessedly are of those pertaining to the lungs or kidneys, we should doubtless see a marked diminution in the number of cases of incurable brain disease which are now so prevalent. To dismiss patients presenting head-symptoms, with the statement that their troubles are due to disorder of the stomach or liver, is a very convenient way to cover up ignorance, while it always leaves a loophole for the excuse that the patient could not understand the nature of the complaint were it explained to him. Not long since a gentleman, of New York City, of great wealth and high social position—one accustomed to using his brain inordinately when necessary, and upon other occasions prone to alcoholic excesses—presented himself to his physician with the complaint that he could not sleep, and was suffering intensely from headache. These symptoms had been present for several months, and were accompanied by dimness of vision, difficulty of speech, burning pain in the abdomen, and momentary lapses of consciousness.

The physician—a man eminent in the professsion—subjected Mr. R—— to a thorough examination, and announced that there was no difficulty with either lungs or heart, no enlargement of any of the abdominal viscera, and that he could discover no abnormal ingredients in the urine, and finally dismissed him, saying that all his symptoms were due to disordered digestion, for the relief of which he prescribed an ordinary tonic mixture. Mr. R—— continued his ordinary avocations, and within a fortnight had an epileptiform convulsion, which left him paralyzed in his left side.

While it is not the province of any one to say that proper directions or the best medical treatment could have prevented the occurrence of this unfortunate attack, yet no one who has had anything to do with similar cases can pretend to say that the physician who does not lay before such a patient the dangers of continued mental excitement fails in the performance of his duty. To permit an individual presenting such symptoms to continue his ordinary avocations, is fully as bad practice as it would be for a surgeon to allow his patient with acute synovitis of the knee-joint to undertake a pedestrian tour.

Aside from patients presenting such unmistakable symptoms as were complained of by Mr. R——, there are many others in whom, while the brain is mainly at fault, the symptoms of general bodily debility are so well marked that they obscure the evidences of cerebral disease. In the introduction to the second volume of his admirable "System of Medicine," Dr. Russell Reynolds says: "Tubercular meningitis has been mistaken for typhoid fever, and *vice versa;* abscess of the brain has been confounded with malarial poisoning; and, again, tumors of the brain have been regarded as diseases of the stomach; while all the symptoms of cancer of the stomach have been explained away by the fiction of 'spinal irritation." It will occasionally happen that a patient after visiting a number of physicians, will return with a list of names for his disease as numerous as his medical advisers. In a case of cerebral softening recently under the care of the writer, the lungs, heart, kidneys, liver, and brain had each been declared to be the sole seat of the disease from which the patient was suffering, by five physicians of New York City, all of whom had been consulted within a single week. The same thing, with but slight variations, occurred in the case of a little boy, an epileptic, the son of a prominent homœopathic physician there, who was brought to me by his mother, only in this instance the diagnosis had been made by irregular practitioners.

In view of such facts, it is of the utmost importance that attention should be paid to the subject of the diagnosis of cerebral diseases, with the special object of detecting those early indications of brain disorder which occur while it is yet possible to employ therapeutical resources with the utmost certainty of success. The late Dr. Marshall Hall—and who had better opportunities for judging whereof he spoke? says: "A useful work might be written on the subject of insidious and impending diseases, with the view of making their first or antecedent symptoms known to the public, and of thus suggesting the cause and means necessary for their prevention."

The physician too often discovers, when investigating the history of an advanced and incurable case, that unequivocal cerebral symptoms have existed and been partially observed during the early stages, without exciting any apprehensions on the part of the patient, or his friends. If such circumstances cause regret among non-professional persons, how should the physician feel who through inadvertance allows those golden moments for treatment to pass unimproved.

"The brain—the most important and exquisitely organized of all the structures of the human body, the physical instrument of intelligence, centre of sensation and source of volition, the repository of nervous power—is permitted to be in a state of undoubted disorder without exciting any attention until some frightfully urgent, alarming, and dangerous symptoms have been manifested, and then, and not till then, has the actual extent of the mischief been appreciated, the condition of the patient recognized, and advice obtained for this relief.

"Other deviations from health, as a general rule are not so neglected. In liver, bowels, lungs, and skin, the first symptoms of approaching disease are in most cases immediately observed, and the patient without loss of time seeks the aid of his physician. But when the brain is implicated, and the patient complains of persistent headache associated with some slight derangement of the intelligence, disorder of the sensibility, illusions of the senses, depression of spirits, loss of mental power, or modification of mobility, is not his condition in many cases entirely overlooked or studiously ignored, as if such symptoms were signs of robust health, instead of being as they frequently are, indications of cerebral disorder, requiring the most grave and serious attention, prompt, energetic, and skilful treatment?" *

While disposed to agree with these remarks of Dr. Winslow in the main, yet I must say that, accepting as true the accounts given by a large number of patients and their friends, the medical attendant, in many cases, must bear a certain amount of responsibility for neglecting these early symptoms. Much of this is to be ascribed to that method of teaching which places disorders of the nervous system in the class of "symptomatic" diseases, and ascribes as their immediate cause a vitiated condition of the blood, which is to be recognized by an examination of the urine. Without entering upon the discussion of this question, I would simply direct attention to the fact that very many cases of cerebral disease are directly due to excessive mental exertion; that this mental exertion affects the structure and function of the brain, by diminishing or increasing the amount of blood flowing through the cerebral vessels in the same manner that anger causes flushing, and fear, pallor of the face. The *long continuance* of mental excitement produces overdistention, loss of contractility, and partial paralysis of the muscular walls of the blood-vessels of the brain, and the hyperæmia and stasis so resulting are the immediate and direct causes of those cerebral symptoms which it is our present purpose to consider.

Prominent among the early symptoms of commencing brain disease are those due to modifications of the mental tone. The ability to direct the full powers of the intellect for any considerable period to the careful examination of any subject, however simple, is impaired—the attention is weakened. The feeling of general well-being which attends the proper performance of all the bodily functions is altered to such an extent that any exertion, whether of body or mind, is painful, and that distressing condition of ennui, commonly designated "low spirits," is continually present. The memory, especially for recent events, is impaired and the ability to express thoughts clearly in conversation, or to correctly appreciate what they read, is seriously disturbed from a tendency to substitute, in the one case, different words having a similar sound or appearance, and, on the other from a mental inertia which indisposes them to give the proper attention to what they say and see. The power of acting quickly and decisively is much weakened, and a change of character ensues which is readily recognized by the patient's friends. An individual suffering from incipient brain-disease may present as its earliest symptom a peevish, fretful, irritable disposition, and a vacillating judgment strongly at variance with his behavior in health. The thoughts become confused and succeed each other without logical connection, while the power of forming correct ideas of subjects even the most simple is very materially weakened. In the majority of cases, well-marked delusions are rare at this early stage, yet illusions of the senses are very common, and generally make a strong impression upon the patient's mind.

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* WINSLOW, "Obscure Diseases," etc.

Generally preceeding, or at least occurring coincidently, with these mental difficulties, symptoms due to the disordered phenommena of sleep and dreams will be developed. These are essentially a diminution in quantity below the natural and healthy standard of the former, and an alteration in the character of the latter. Instead of the period of repose lasting the natural time and being followed by the feeling of rest which succeeds healthy sleep, the patient is troubled with wakefulness, and his nights are an almost constant vigil. What little sleep is procured is disturbed by painful and distressing dreams, and the morning finds the patient as unrefreshed as the evening left him. One peculiarity of the disturbed sleep of a patient in this condition is the fact that he cannot always separate in his thoughts the imaginary events of his dreams from the real occurrences of the day. Several ludicrous incidents due to this cause have lately come to my knowledge.

The altered sensations of the sufferers declare themselves either in the form of pain limited to the head or generally diffused over the body, vertigo, or in the abnormal functions of the organs of special or common sensation. The headache of cerebral disorder in this stage is unaccompanied by manifest acceleration of the pulse or any indications of pyrexia. It may be either superficial or deep-seated, and in the former case generally follows the course of some of the superficial nerves. The vertiginous symptoms, likewise present no specific characters. The special senses most commonly affected are those of sight, hearing, and touch—taste and smell being implicated more rarely. The visual powers may be altered in many different ways, but generally, this sense is either diminished or perverted. In the former case, the patient will complain that he cannot see as acutely as formerly, that objects become blurred and confused, while any attempt at close examination will be attended with pain seated deeply within the head. In reading his paper, the lines will run together, and in place of separate words and distinct sentences he will see a mass of devious threads at the point where he directs his sight, while on the outskirts of this visual field everything will appear normal. In observing a white wall, patches of various colors will intrude themselves, while achromatic fringe will surround the gas-flame. Rooms which are brilliantly lighted for others will appear dark to him. Luminous spectra and spots will fill the visual field, and the inability to banish them by closing his eyes will cause him not a little trouble. This irritable condition renders him exceedingly liable to optical illusions, and, as the disease becomes more advanced, hallucinations, due to cerebral irritation, will manifest themselves. These occur long before the mental symptoms have reached the state when these false interpretations of real objects (illusions) or purely imaginary creations (hallucinations) are accepted by the mind as true, thus creating real delusions. The same series of phenomena can be traced when we examine the symptoms due to alterations of the sense of hearing. The earliest symptom will be a diminution in the acuteness of this sense, and subsequently an alteration in the character of the sensations it conveys. The slight deafness which primarily ensues may be confounded with an indisposition on the part of the patient to pay attention to what is going on around him. As the disease progresses, *tinnitus aurium* will be developed. These almost imperceptible sounds soon become magnified until the patient is greatly distressed by the continuous din. Succeeding this will be a period when the sounds assume definite form and resemble voices in conversation. Should the disease be sufficiently advanced, the patient will become suspicious, declaring that he can hear the voices of those conspiring against him, and he will not hesitate to declare that his best friends are in the plot. In like manner, the symptoms due to alteration of the nerves of the integument are as various as the sensations they can convey in health. The most common of these are feelings of numbness within circumscribed areas, and localized sensations of pricking and tingling, commonly expressed by the term "pins and needles." Feelings of burning, alternating with sensations of extreme cold, occur, either generally diffused over one side of the body, or limited to the extremity of a single limb. The feeling that a foreign body is continually in contact with certain portions of the organism is a common and very distressing symptom. There are a number of indications of cerebro-spinal disorder presented by the nerves of touch, which never declare themselves in consciousness, and are not complained of by the patient. They are to be recognized by the employment of the æsthesiometer, the value of which will be dwelt upon shortly.

The implication of the motorial power may vary in result from the production of the merest sense of fatigue, to the most complete paralysis of voluntary motion. The distribution of this lesion, like the affections of sensibility, may be confined to one point, or it may implicate one lateral half of the body. To implications of the motorial power are to be ascribed, many symptoms which at the first glance appear to be due to other causes. It is the partial paralysis of one or more muscles of the eye which, by disturbing the axis of vision, causes diplopia; while the implication of the muscular structures of the internal ear have much to do with the early development of tinnitus aurium. The difficulties of articulation, which are among the earliest evidences of cerebral disease are due, in many cases, to want of power in the muscles of the vocal organs, while the peculiar staggering gait is always due to the same difficulty with the organs of locomotion. When the unfortunate sufferers have been men engaged in sedentary and clerical pursuits, subsequent investigations have shown that, for months before anything wrong was suspected, an alteration in their handwriting due to this cause was plainly to be seen.

While it is convenient to separate the symptoms in this way, and consider them under the general headings of lesions of mind, sensation and motion, it must be remembered that, as a clinical fact, we always find them conjoined. Different cases run different courses—no two are exactly alike—but all cerebral diseases present, in varying degrees of prominence the symptoms we have here so briefly enumerated.

To revert for a moment to the anatomical condition which, induces these symptomatic phenomena we find that, for a correct understanding of the symptomatology of the cerebro-spinal affections, it is essential that the physiological processes whereby the brain is nourished in health, the variations which occur normally, and the phenomena presented by the circulatory system in disease, should be thoroughly comprehended. The intimate connection existing between the intra-cranial and intra-ocular circulations will render necessary a brief description of some anatomical points which will throw light upon certain physiological changes to which they are subject in common.

The main points at issue in regard to the mechanism of the encephalic circulation relate to the atmospheric pressure, the variability of the quantity of intra-cranial blood, and the power of the heart to exert a compressing influence upon the tissue of the brain by any influence that can be communicated through the carotid and vertebral arteries.

The bones of the cranial cavity form an unyielding case in which the nervous tissues of the encephalic centers, their membranous coverings and nutritive vessels, are packed with the utmost compactness and nicety. Intimately attached to their inner surface is the dura mater, which forms their internal periosteum, and is prolonged into the spinal canal, where it constitutes the external layer of the theca of the cord. The cranial nerves, as they emerge from the skull, are invested with a covering from the dura mater, the encephalic sinuses are situated in layers of its substance, while partition-like processes serve to separate and support different divisions of the brain.

The pia mater, the most internal of the membranes of the brain, and the one directly in contact with its surface, closely invests the cortical layers of the supreme centers, and is prolonged into the general ventricular cavity. It is the medium through which the nervous structures of the encephalon receive their nutritive supplies, and is situated between the brain and the arachnoid membrane. The arachnoid differs in no essential respect from the other serous membranes of the organism. Like the dura mater and pia mater, it is continuous with similar structures surrounding the spinal cord. It lines the internal surface of the dura mater in the cerebro-spinal cavity, and invests the pia mater, forming a closed sac, the highly polished surfaces of which are in immediate contact. It is never prolonged as a covering to the nerves which leave the brain or spinal cord, but at the point where they pierce the dura mater is reflected on the internal surface of that membrane. Its visceral layer does not penetrate the ventricles, neither does it dip into the sulci between the convolutions; it simply invests the external surface of the pia mater loosely, and at certain situations its arrangement enables the serum, with which the brain is abundantly supplied in health, to accumulate in considerable quantity.

The cerebro-spinal serum is found wherever the pia mater is situated whether in contact with the brain or spinal cord, on the surfaces of both organs, and in the ventricles of the former. It fills the various inequalities of the cranial and spinal walls, but accumulates in greatest quantity where the subarachnoid space is most abundant. At the base of the brain two large reservoirs can be observed, one behind and one below the cerebellum, corresponding to the posterior surface of the medulla oblongata, enclosed behind by the layer of arachnoid which passes from the medulla to the cerebellum, and one in front, extending from the anterior surface of the pons varolii to the commissure of the optic nerves, occupying the central depression between the middle lobes of opposite sides, and bathing with its fluid the basilar and cerebral arteries, the chiasma, the tuber cinereum and infundibulum. Near the level of the corpus callosum, above the tubercula quadrigemina and behind the pineal gland, can be found a third receptacle, in which this extravascular serum accumulates in considerable quantity. The subarachnoid space of the spinal cord contains this liquid in abundance, and the anatomical structure of the parts is such that it can readily pass from the cranial to the spinal cavity, and *vice versa*.

The arterial supply of the brain is in many respects peculiar. The main arteries which penetrate the skull are provided with an anastomosis (the circle Willis), which is very complete; the large branches which originate from it traverse the sulci of the convolutions before dividing into the network of vessels which, in great part constitute the pia mater, and but few trunks of considerable size enter the cerebral substance. This extensive division and subdivision of the arterial vessels in the membrane which invests and lines the intra-cranial nerve-centers, undoubtedly operates to protect those delicate parts from the commotion incident to arterial pulsation, while the free anastomosis thus established prevents disturbance of the cerebral circulation from slight and transient causes. The extravascular serum which surrounds the larger vessels at their entrance, and accompanies the branches in their course, by the facility with which it is increased or diminished, would seem adapted to compensate for an increased or diminished amount of blood in the main vessels, without disturbing the equilibrium of the brain. The researches of Robin and His have demonstrated another anatomical peculiarity, which illustrates still more the conservative provisions with which the brain is endowed, and supplies the missing link which was necessary for a complete conception of the physiological actions of the encephalic structures. This is the discovery of a system of lymphatic sheaths, enclosing spaces around the blood-vessels, revealing a structural adaptation which seems especially calculated to permit of varying amounts of fullness of the cerebral vessels within certain limits, without injury to or compression of the surrounding nerve pulp. "Professor His has succeeded in injecting this system of perivascular canals, and has found them most numerous in the grey matter of both brain and spinal cord. He has found the injections come to the surface of the encephalon and cord, and fill a vast system of lacuna situated between the pia mater and the surface of the nervous centers, whilst, it pushed still farther, he has found it fill the lymphatics of the pia mater itself. Thus there is, as it were, a second series of vessels enclosing and surrounding with a fluid medium all the ramifications of the cerebral and spinal vascular system, whilst these two sets of vessels, containing and contained are lodged in definite cylindrical canals, permeating the nerve-substance in all directions. The lymphatic sheaths are in contact with, though easily separable from the walls of the canals in which they are contained. The diameter of these canals, and therefore the lymphatic sheath, may be seen in transverse sections to be generally twice and sometimes three or four times as large as their contained blood-vessel. It will be easily understood that these two systems must have such a complemental relationship to one another that an extra state of fullness of one set of vessels must correspond with diminished fullness of the other set. That is to say, in order to make room for an increased amount of blood in the cerebral vascular system, a corresponding amount of fluid must be driven out of the enveloping lymphatic sheaths, whilst, when the vascular supply is again diminished, a proportionate amount of fluid re-enters the cerebral lymphatic canals."*

It occasionally happens that the physician has an opportunity of observing the phenomena presented in cases where a portion of the bony investments of the brain have been removed, either as a consequence of disease, or of surgical operation. It will then be apparent that, during the circulatory and respiratory movements of the heart and lungs, the brain undergoes marked and decided alterations of volume. Should the membranes be ruptured also, other phenomena will be apparent. The connection between these movements, which require such exceptional circumstances to render them apparent, and the changes which ensue in the brain when invested by its natural covering, is of such an interesting nature and so closely connected with many of the pathological states of that organ, that it is deserving of consideration.

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*BASTIAN: Reynolds' System of Medicine, Art., "Congestion of the Brain."

When from any cause a portion of the cranial parietes has been removed, exposing the membranes of the brain, it can be observed with each contraction of the heart, and each respiratory movement, that the tension and prominence of these membranes will vary. The cardiac systole will be attended by an increased size, a visible enlargement and swelling of the exposed parts, which will approximate, or even pass, the osseous boundaries of the cavity through which they can be seen, and the sense of touch will show that this action is accompanied by a pulsatory movement of the same nature as that attending the dilatation of the arteries in other parts of the body. With the diastole the membranes diminish in size and recede within in the cranial walls. These appearances vary with the intensity and rapidity of the heart's action.

The respiratory movements are accompanied by phenomena not less apparent. With inspiration the volume of the brain, as exhibited by the parts under examination, will diminish, the membranes recede and become depressed. With expiration they expand, grow prominent, and pass beyond the boundaries of the skull. The movements synchronous with the cardiac systole and diastole may be observed during both inspiration and expiration, but are much more marked during the latter. When from accident, in addition to the loss of bone, there is perforation of the membranes, each expiratory act will be accompanied by protrusion of a portion of the cerebral substance, constituting *hernia cerebri*.

The phenomena attending sleep and wakefulness are not less marked. During the hours of active exercise and ordinary mental excitement, the situation of the membranes as regards degree of approximation to the opening in the skull will differ widely from their position during the repose of sleep. In the first condition, aside from the respiratory and cardiac movements, the membranes will be observed tense and distended; in the latter they will be lax and flaccid. In the one case they will be much nearer the opening in the parietes, than in the other, their resistance to pressure and apparent vascularity will likewise present differences easily recognized. In brief, sleep will be attended by a diminished size and an anæmic state of the exposed membranes, while wakefulness will be accompanied by protrusion and hyperæmia of the same parts.

The various medical writers who have treated of the cerebral circulation, can scarcely be said to have thrown much light upon the subject. The experiments of Monro, Kellie and Burrows, the speculations of Abercrombie and the teachings of Watson, Williams, Tod and Bennett, while they clearly express the views warranted by the anatomical and physiological knowledge of the times in which they were formed, were radically defective in many important respects. The *a priori* conceptions they carried to their work are apparent in the results they attained, and it is only by the light of a more perfect anatomy and a more advanced physiology that we can, at the present day, arrive at results which, to say at least, contain fewer elements of error.

The different authors I have mentioned, with Reid, Copeland, Kirkes, Carpenter and Arnott, whilst disagreeing more or less regarding the variability of the circulation within the cranium, its amenability to atmospheric pressure, the power of the heart to exert a compressing influence, and the importance of the cerebro-spinal fluid, are in harmony so far as regards the general admission of a state of intra-cranial fullness—a condition in which its fluid and solid structures accurately fill the cranial cavity. The question of an intra-cranial *plenum* is undoubted, but the variations in the relative quantity of the different fluids, with the circulatory and respiratory movements of the brain, its anæmic condition during sleep, and its vascular state during wakefulness, have not been set forth with the clearness and precision their physiological importance warrants, and need a few words in explanation.

In the normal condition the brain floats upon, is surrounded with, and permeated by the extra-vascular serum which accumulates at the base of the skull, permeates the pia mater wherever situated, and invests the vascular trunks contained in the lymphatic sheaths which penetrate its substance. This liquid communicates freely with the ventricles of the brain, and flows readily from the cranial to the spinal cavity. When the bony investments of the encephalon are intact, the contraction of the heart is attended by the propulsion of an increased amount of blood into the cranial cavity—an amount greater than can be compensated for by the quantity, which is returned by the veins during the same interval of time—and, as a consequence, an amount of serum corresponding to the increased quantity of blood is forced from the cranial to the spinal cavity. With the cardiac diastole the tension of the arterial trunks is lessened, capillary attraction carries the new blood into the veins, and atmospheric pressure operates to draw back into the cranial cavity the serum just expelled. With each movement of the heart this interchange takes place—every systolic contraction is attended by a flow of serum from the brain to the spinal cord, and the succeeding diastolic relaxation is attended by its return to the cranial cavity.

The mechanical forces in operation during respiration produce definite changes in the volume and appearance of the encephalic structures. The inspiratory act is accompanied by descent of the diaphragm and elevation and lateral expansion of the ribs, enlarging the cavity of the chest in all directions. One immediate effect of this enlargement is to draw, as it were, the blood from the large venous trunks in the vicinity into the right ventricle of the heart, and this action is an important element among the forces which operate to maintain the general or systemic circulation. During the inspiratory act the blood is withdrawn from the cerebral sinuses, and this suction force may be so great as to cause collapse of the superficial veins of the neck. The phenomena of expiration due to the stagnation of the venous blood are equally marked and decided. The ascent of the diaphragm and subsidence of the chest-walls are accompanied by a temporary suspension of the flow of blood to the heart from the sinuses, while the uninterrupted activity of that organ continues to send an increased amount of blood into the brain. The consequence is, that while the normal quantity of blood is propelled into the intra-cranial cavity, comparatively little if any, is discharged from it, and an unusual amount is lodged in its vascular system. As a result, the extra-vascular serum passes to and from the spinal cavity with each respiratory movement, flowing into the cranial cavity during inspiration, to supply the place of the blood drawn from the sinuses by the dilatation of the chest-walls, and returning during expiration as a consequence of the retardation of the venous flow which ensues from their contraction.

The movements which can be observed in the membranes and substance of the brain when the skull is perforated do not occur in its normal state. The alternate dilatation and contraction of that organ during the movements of respiration and circulation, which can be seen when a part of the cranial parietes have been removed, are not possible when the encephalic coverings are intact. The varying states of vascular fulness corresponding with these physiological movements are then compensated for by the flux and reflux of the extra-vascular serum in the manner indicated.

The conditions of sleep and wakefulness are accompanied by alterations in the tension and vascularity of the exposed membranes. In sleep they grow flaccid and their blood-vessels diminish in number and size, whilst, during wakefulness, they are prominent and vascular in proportion to the state of mental or bodily activity. When the coverings of the brain are intact, the anæmic condition of the cerebral organs during sleep is accompanied by the presence of an additional quantity of serum around the vessels, in the meshes of the pia mater, and the ventricles of the brain; whilst, during wakefulness, the vascular trunks enlarge, and the serum is forced from the cranial to the spinal cavity.

The pulmonary and abdominal organs are invested by a serous membrane of the same nature as the arachnoid, and analogous offices are performed by these structures in common. The most prominent of these is the facilitation of motion by their polished surfaces. This can be seen in great perfection in the movements of respiration, whereby, through atmospheric pressure, the lung substance remains in contact with the chest-walls during inspiration, and during expiration in the return of the abdominal viscera to their proper positions. The unyielding bony structures external to the arachnoid, being motionless, do not act so as to cause the visceral layer to move in order to keep in contact with its parietal layer, as the surfaces of the pleura and peritoneum are forced to do, yet atmospheric pressure, which operates to keep the serous surfaces of those organs in apposition, and produces many of the visible phenomena of respiration, preserves the character of the arachnoid as a closed sac, keeps its surfaces in contact, and maintains the fluid contents of the skull at a uniform quantity. For the due performance of the physiological movements of the brain, the arachnoid sac, and extravascular serum are as important as the cavities of the pleuræ, the contractile muscles, and the inspired and expired air are to the movements of the chest during respiration.

Cases of disease exemplify what it is reasonable to infer from the anatomical structure and physiological peculiarities of the intra-cranial organs in relation the ability of the heart, under certain circumstances, to exert a compressing influence upon the encephalic substance, It is necessary, however, that all the serum should first be expelled from the perivascular sheaths, and in great measure from the meshes of the pia mater, before the cardiac impulses can affect the nervous tissues, and, as a general rule, this is only possible in those cases where, from the continued distension due to prolonged functional activity, the muscular coats of the vessels have lost their contractility.

Finally, the peculiarities of the cerebral circulation, including the various disputed points, can be summarized as follows:

First. Atmospheric pressure operates in such manner as to keep the fluid contents of the skull at all times the same ;

Second. The heart can, under certain circumstances, exert a compressing influence upon the encephalic structures; and

Third. The relative quantities of arterial and venous blood and extravascular serum vary with,

1. Cardiac contractions,
2. Respiratory movements,
3. Sleep and wakefulness,
4. Mental excitement and repose.

Cases occur continually in which it is necessary to push to the utmost all available means for acquiring a knowledge of the condition of the cerebro-spinal centers. When speaking of the symptoms due to altered conditions of the nervous filaments distributed to the integumentary structures of the body, the remark was made that many of the modifications wrought by cerebral disease were not declared in consciousness, and, therefore, formed no part of the case. This is the fact, save in those rare instances where by accident the patient discovers the peculiarity to be mentioned. The nerves of the integument may be modified in one of three ways: their functional activity may be increased—*hyperæsthesia*; diminished—*anæsthesia*; or altered so as to cause the peculiar condition technically known as *analgesia* or *dyæsthesia*. The patient will not fail to become conscious sooner or later of the existence of any one of these conditions, except anæsthesia. Tactile sensation may be abolished for long intervals without the individual being aware of the fact. In the early stages of cerebral disease, careful observation demonstrates the fact that this endowment of the skin may be implicated at a period prior to the appearance of any other pathological process which the physician can recognize.

Such being the case, it is of the greatest moment that in any patient suspected of having brain-disease the condition of the tactile sensibility be investigated, and any alteration from the natural standard carefully noted. This necessity has led to the invention of instruments for the determination of the cutaneous sensibility. Dr. Sieveking, in 1858, described an instrument for this purpose, which he called an æsthesiometer.* He stated that the classes of cases in which it would be found useful, are:

"1. In actual paralysis, to determine the amount and extent of sensational impairment.

"2. As a means of diagnosis between actual paralysis of sensation and mere subjective anæsthesia, in which the tactile powers are unaltered.

"3. As a means of determining the progress of a given case of paralysis, for better or for worse."

The value of this instrument in cases of diminished sensibility depends upon the fact that the capability of distinguishing two impressions, made simultaneously varies in different regions of the body according to the distance they are apart. For instance, the two points of a pair of compasses can be distinguished at about the sixth of an inch apart when applied to the end of the finger, while upon the back of the hand only one point is felt, though they are an inch apart. The compasses contained in any draughting case answer admirably in any instance where it is necessary to employ an instrument for the purpose of measuring the sensibility. In practice, it is unnecessary to pay attention to the elaborate tables which record what purports to be the absolute sensibility of the different regions of the body, for each and every individual examined will be found to present variations from these standards. In investigating disease, the capital fact to be borne in mind is, that the comparative sensibility of corresponding situations on the two sides is almost exactly alike—the left side being a trifle the most sensitive, according to my observations. In cases of impending cerebral disease, we will occasionally find that, while the sensibility on one side remains normal, there will be such marked anæsthesia of the opposite side that the points of the æsthesiometer will have to be separated four and five times as far as on the healthy side before the patient can distinguish the two points. It is unnecessary to dwell upon the diagnostic significance of so grave a fact as this.

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*BRIT. AND FOR. Med. Chir, Rev., January, 1858, p. 215.

There remains one method of interrogating the cerebro-spinal axis which, while it is certainly our last discovered resource, yet bids fair to rival them all in the precision of its results and the ease of its application. This is the ophthalmoscope. From time immemorial, the fact that too much or too little blood within the brain was competent to produce the same symptoms has been well known. Equally well known was the fact that the treatment applicable in one condition was contradicted in the other; and, although there existed a multitude of rules for distinguishing between an anæmic and a hyperæmic condition of the brain, yet it was not until the ophthalmoscope was employed for this purpose that the physician was enabled to demonstrate in a given case the exact condition of the blood-supply of the cerebral organs, and to direct his remedial measures in a proper manner. In the diagnosis of incipient brain disease, and especially that state of cerebral congestion which in the majority of cases precedes attacks of apoplexy and paralysis, the ophthalmoscope is invaluable. "As the retinal vessels are direct continuations of an important branch given off by the internal carotid within the cranial cavity; as both arteries are supplied by that nerve—the sympathetic—whose function is to regulate the diameter of the vascular trunks to which it is distributed, and whose controlling influence is manifested by an increase in the size of the retinal vessels by influences—as emotional activity—competent to increase the quantity of blood within the brain, as well as by the fact that they diminish in size under the operation of medicines which have the power to produce cerebral anæmia—no inference can be more plain to my mind than that, in cases where there is no local disease to affect the vascularity of the eye, the condition of the retinal vessels must be taken as indicative of the blood-supply of the brain."*

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* VANCE. "The Ophthalmoscope in the Treatment of Epilepsy," *New York Medical Journal*, February, 1871.

The ophthalmoscope enables the physician to separate the functional disorders from the organic diseases of the intra-cranial organs, and is thus of the greatest value in prognosis. The alterations in the size, shape, color ,vascularity, and appearance of the optic discs, the certain indications of structural changes within the skull, are widely different from those irregular dilatations of the retinal vessels which, with an increase in size and number of vascular trunks, denotes a hyperæmic condition of the brain. In a certain proportion of cases, spots of extravasated blood can be seen in the retinal structures, while in others minute aneurisms and well defined disease of the walls of the vessels are plainly apparent. The marked appearance of the intraocular structures symptomatic of cerebral disease are so numerous and so varied that it is impossible to enumerate them all and keep this article within due limits.

In conclusion I would again urge the importance of early and careful investigation of every case presenting symptoms of cerebral disturbance, feeling confident, as I do, that it is only by prompt treatment in the very beginning of such affections that the present disproportionate excess of brain diseases can be checked.

Art. 5.—The Compression of the Aorta in Post Partem Hæmorrhage.

By C. G. COMEGYS, M. D.,

Lecturer on Clinical Medicine in the Cincinnati Hospital.

Inglesby in his work on Midwifery, published in 1832, speaks of the value of compression of the aorta in inordinate flooding, and gives credit for the suggestion to Latour, who, in an article on the subject in the *Revue Medicale*, relates a successful case; and who states that Ploucquet had revived it as quite an old proceeding, that had fallen into disuse.

Although Cazeaux, in the third edition of his treatise on Midwifery, Paris, 1850, had written at some length on the certainty of arresting hæmorrhage after delivery by this proceedure, yet not much attention had been given to it, until Professor Chailly read a paper before the Academy of Medicine in Paris, on the 22d of April, 1857, giving an account of 18 cases in which he had practiced it, and with but one failure. In the fatal case the patient had been extremely anæmic, and the bleeding had gone to about a fatal point before he arrived. He arrested further bleeding, but there was not blood enough left to revive her. It was this paper and its discussion in the Academy that drew my attention to this resource in a time of such peril; for I had had in the first year of my practice the terrible experience of a fatal *post partem* hæmorrhage.

I was called suddenly to see the patient of another physician, who had left her, thinking she would not need his services very soon. The husband stated that she was subject to dangerous bleeding after delivery,—in fact, in her last confinement had recovered against all expectation. On the way I provided myself with ergot and sent for ice. The child was born immediately after my arrival, and the expulsion was promptly followed by an alarming hæmorrhage. I withdrew the placenta and planted a lump of ice in the cavity of the uterus, — compressed and gripped it, giving abundantly of ergot meanwhile; the head was lowered and stimulants freely applied; but in vain. She died in thirty minutes after giving birth to the child. It was an appalling scene to a young practitioner, but I was consoled with the reflection that I had promptly and properly used the most approved means to save her life. When, therefore, I saw Chailly's memoir, I felt that a most precious addition had been made to our means of saving life under such circumstances, in fact, that it was certain of success.

There have been frequent occasions in the past thirty years on which I have put my patient out of danger, in hæmorrhage from uterine inertia, by compressing the aorta. Within the last four years I have met with three notable cases, in which by this method I am confident I have saved each patient's life. In one of them the pulse failed at the wrist — even the aortic pulsations were very feeble and irregular; the vision was affected; the face became white and clammy, and those deep yawns, so characteristic of a great loss of blood, took place. I think here, that even with complete compression of the aorta, my patient would have perished, but for the great lowering of the head and shoulders which I effected.

My last case occurred four weeks since. She was a *primipara*. The labor was nothing remarkable, the perineum was but little torn, and the placenta came away readily. I was sitting with my right hand upon the reduced uterus, griping it more or less, for the organ did not contract well, yet it was not too large for the occasion. While my attention was for a moment occupied with the baby, the mother asked to smell camphor. Turning my attention toward her, I found that she was very pale, breathing hurriedly and her pulse had run up above one hundred. Further examination disclosed a pool of blood, that was topling over the edge of the bed, wetting the skirt of my coat and running into my side pocket. Plunging my hand into the vagina, I found no clots, nor any in the uterus, but the organ was as soft as soaked paper. I at once arrested the aortic circulation, applied ice, gave an ounce of the wine of ergot, which I had at hand, lowered the head and applied my fingers to the internal surface of the womb, to excite contraction. My practice seemed to be successful in securing due contraction, and as the bleeding was arrested, I applied a bandage firmly with a compress; gave an additional half ounce of ergot and went into another room for a rest. In half an hour the bleeding recommenced, so that I was obliged to remove the bandage and repeat my measures. In a short time all the inordinate flow ceased, but as the uterus seemed to be too flaccid for safety, I determined to inject the cavity with a solution of per sulphate of iron, and went away for my apparatus. However, finding on my return no bleeding, I did not practice it.

I have not had time to look up to a full extent the opinions of systematic writers on this method of treating *post partem* hæmorrhage, and will only offer such as I have at hand. Cazeaux quotes Baudulocque and d'Ornellas in its favor. Hodge says it cannot be relied upon alone, but is valuable as an adjuvant. Barnes favors it as an extreme resort and quotes Ulsaner and others, also, for its value. Kirwisch, he says, does not place much value upon it because the ovarian arteries not being compressed, as well as the aorta, the fatal hæmorrhage may still go on. Bedford speaks well of it and Byford also. Leischman thinks the most weighty objection to the practice is obvious in the fact that the source of the bleeding is not so much in the curling arteries of the uterus as in the venous sinuses, so that aortic compression can not be supposed to exercise a very decided effect;—that it is not possible to compress the aorta without also the vena cava, so that the blood returning from the lower extremities by the cava would, on account of its compression too, regurgitate through the uterine veins. Jacquemier objects to the practice for the same reason.

This objection is groundless, for in the first place it is perfectly easy to compress the aorta without interrupting the flow upwards through the cava; next, the *vis a tergo* being arrested, the venous movement is reduced to a minimum from below; lastly, the venous valves in the internal illiacs cut off all backward entrance of the blood into the uterine veins, which have no valves. As to the ovarian arteries, which leave the aorta above the usual point of compression, they are too small to allow the passage of a dangerous quantity of blood to the uterus under the circumstances, besides, as they lay on the aortic surface for some distance below their origin, I think they are compressed with the aorta.

The fact remains at any rate, that with the arrest of the aortic circulation, which is as easily effected as that of a radial artery, the *uterine hæmorrhage at once ceases*; a mere drain continues for a short time, and the organ no longer surcharged, yields readily to other means employed to secure its contraction. There is no longer much possibility of a patient perishing in uterine inertia if the method now urged is adopted.

It is to be remembered though, as Hodge says, that it is an adjuvant. Let no one forget, especially, to lower the chest and head, —for though the bleeding may have been stopped, the vital juice may be insufficient to maintain innervation of the brain and medulla oblongata, unless the posture of the patient favor its accumulation there.

There is one distressing symptom in compression of the aorta, which no writer has alluded to, but which must always exist when the blood supply is cut off from an organ, and that is the pain from anæmia of the nerves and muscles of the hips and legs. This is so intolerable that the sufferers sometimes have with loud cries implored me to take my pressure off and let them die; such was the agony in the legs. Any one who has ever encountered an embolism of a great artery of supply to an organ *e. g.*, the arm, knows how much suffering is expressed by the patient.

There is no anæsthesia nor loss of motion in the legs from the procedure, because the point of pressure of the aorta is below the origin of the *cauda equina*, and thus the blood supply to the spinal centres is not interrupted; it is the anæmia of the fibres of the nerves that gives so much distress.

Is there any danger of a thrombus at the point of pressure?

None I think, because thrombi are not likely to be developed in a vessel whose tissues are healthy, and there is no need of compression to such an extent as to involve the integrity of the aorta walls.

The point of pressure chosen by me is a little above the umbilicus, using the ends of three fingers in an oblique line to the left, so as to avoid the vena cava.

The complete arrest of the circulation is proven by the cessation of the pulse in the femoral arteries. I have tried on every occasion in such cases, to instruct the nurse in the method, for an emergency when the physician cannot be reached; and on one occasion it has been the means of saving a patient from great danger, at least the nurse has assured me, that a doctor in a case had told her so.

It is well to make mention that pressure continued for some time is fatiguing, and we loose consciousness of the amount of force employed for the continued muscular tension impairs the "muscular sense," though not the tactile sense. (I think in such cases the differentiation of the muscular, and tactile sense is plain). Any bystander, by some pressure on the hand of the practitioner, gives great relief to the muscular strain.

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Art. 6.—Reduction of Dislocation of the Hip-Joint by manipulating the Femur as a Lever over a Fulcrum placed in the Groin.

By S. M. MARTIN, M. D., Greenfield, Ind.

Aurora, Ind.

Mr. Editor:—I send you the following letter from Dr. S. M. Martin, an intelligent physician of Greenfield, Indiana, as presenting additional evidence of the value of the fulcrum in the reduction of dislocations of the hip-joint.

Respectfully yours, etc.,

GEORGE SUTTON, M. D.

Greenfield, Ind., June 22d, 1877.

GEORGE SUTTON, M. D., Aurora, Ind.

My Dear Doctor:—When I heard your communication read to the Indiana State Medical Society, on "The Fulcrum as an Aid to

Manipulation in the Reduction of Dislocations of the Hip-joint," I felt convinced that you advocated a principle in the mechanism involved in that reduction, that was at least, theoretically correct, and promised myself to test its practical applicability at the first opportunity. Having done this in the single case afforded me, I feel that it is due you that I should acquaint you with the success attending my trial. On the 21st of September last, I was called to see Mr. M. E., a robust, muscular Irishman, aged about 45 years and weighing 180 pounds. Five days before my visit he had been thrown from a wagon, by a runaway team, and among other injuries, suffered a dislocation of the head of the femur, into the thyroid foramen. The foot was everted, the knee flexed; the limb, separated from its fellow, had increased in length more than one and a half inches. In fact the symptoms were plain and characteristic. However, their import had not been properly appreciated, until three days after the accident, when he was first seen by our friend Dr. S. A. Troy, and apprized of his true condition. My being some distance away, and Dr. Troy's engagements being such that he could not see him again on the following day, the consultation was fixed for the day but one afterward, namely, the fifth day from the date of the injury, and I notified thereof. I was accompanied by Dr. E. D. Judkins, of this place, and our medical student N. P. Howard, Jr. The preliminaries arranged, and our patient properly placed on the floor, Dr. Troy very judiciously and satisfactorially brought him under the influence of chloroform. The fulcrum had been prepared as you directed. It was now adjusted, and held in place by Dr. Judkins and Mr. Howard. The former gentleman also aided me what he could in the manipulation. Following your "Rule No. 3" in this as exactly as possible, it is not necessary that I should detail the steps; however, after making the first revolution, and attempting to bring the limb down beside its fellow, we found that we had only changed the form of the dislocation, now having the head of the bone on the dorsum of the ilium. Reversing this motion and rotating the knee outward, the limb came down in its normal position, and we had the satisfaction of seeing its complete and perfect reduction. The entire manipulation occupied less than two minutes, and the ease and facility with which the reduction was accomplished really surprised us all, for we had reasonably anticipated some trouble from the extraordinary muscularity of the patient, and that the bone had been out longer than we would have wished, at least. One great advantage gained by the fulcrum, as it seems to me, is the lessening of the force required to make the revolutions, by the lifting of the head of the bone above the obstacles that usually oppose it, thereby lessening the danger of fractures, lacerations, abscess, etc., that are recognized as attending "Reid's Method." Still, if it is necessary that increased laceration should be produced to effect the replacements, increased power to produce it is given. But I apprehend with this method this will seldom be essential. I cannot see however, Doctor, how the fulcrum decreases the probability (or possibility) of changing one form of luxation into another, only so far as it facilitates the reduction. Perhaps this only, was meant by the assertion.

This is perhaps a fairer test case than has yet been published, in that it was the *first* attempt at reduction, instead of the second or third as was the fact in Prof. Pooley's case, and also in that it occurred in the hands of those familiar only with its theoretical details, and having so much less experience in the application of it (or other methods) than either yourself or Prof. Pooley. If your suggestion affords so valuable an aid to the skillful and experienced surgeon, how much more beneficial must it be to us country practitioners, who so rarely meet these cases, and who are compelled to deal with them successfully or otherwise without the assistance we would desire.

As an humble member of this class, allow me, my dear sir, to thank you for your labors in this direction. Very respectfully,

Your obedient servant,

S. M. MARTIN, M. D.

Art. 7.—Old Flaxseed Oil as a Topical Application in Pneumonia.

L. A. DAVIDSON, M. D., West Milford, W. Va.

I visited March 7th, 1876, an anæmic son of Ed. Robinson, æt. ten years. After physical exploration, I diagnosed asthenic type of pneumonia of right lung in stage of hepatization; pulse 160; with great difficulty in respiration; the face and hands of a dingy hue, etc. I prescribed and emollient of flaxseed meal, which Mr. R——.; informed me could not be procured short of a drug store five miles distant; at this juncture he suggested that he had on hand the remainder of some flaxseed oil in the bottom of an old can he had purchased sixteen years before. In this can we found enough oil, thickened by atmospheric exposure, to spread a jacket sufficient to cover the anterior and posterior thorax entire, sprinkling the plaster over with pulv. mustard. I warmed and applied it. Subsequently there was complete adhesion of the plaster without excessive irritation of the skin. I then prescribed carbonate of ammonia with alkaline milk (new milk) to be administered through the day, and a compound of sulphate of quinia and capsicum, during the night. I quit my patient with unfavorable forebodings, with a request that I should have a report of the success of the treatment in twenty-four hours, which, when received, was favorable. My second visit was March 9th, when I found him convalescent, with the applicationstill adherent.

Having since that date applied flaxseed oil which had been exposed to the air from sixteen to twenty-three years, compounded with pulverized mustard, or the fresh root of cochlearia armoracia pulverized and in some cases without any compound whatever, to *sixty-eight* cases of pneumonitis, some of which were of malignant character, with but one *fatal case*, and this case was one of asthma with coexisting chronic bronchitis, I am thus lead to believe that we cannot find at this time a more efficient equalizer of the absorbents and exhalants of the thorax than we have in the flaxseed oil plaster, when the oil is of proper consistency to adhere.

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Continental Medicine.

JAS. T. WHITTAKER.

THE TENACITY OF LIFE OF THE CYSTICERCUS OF BEEF.—Prof. E. Perroncito makes the following *Communicazion preventiva*, to L'Osservatore Gazzetta delle Cliniche di Torino, June 5, 1877 on the tenacity of life of the cysticercus of beef flesh and on the rapidity of development of the corresponding tænia mediocanellata in man:

In the last session of April, I reported to the Society of Medicine and Surgery the results of some experiments upon the cysticercus with the heated table of M. Schultze, and with imbibition with the neutral tincture of carmine from which I arrived at the conclusion that the cysticerci of the tænia mediocanellata perish sometimes at 44°C., often at 45°C., and always at 46°C., and that they never survive 47 to 48°C., when kept at this temperature for at least five minutes.

Since this time some earnest, courageous students of medicine have generously offered themselves to me *in omaggio alla scienza*, and have furnished me opportunity of cultivating the cysticerci into tænia in their own bodies. I find myself thus in position to repeat that neither Signor Gemelli, laureate in medicine and surgery, nor Dr. Ragin, who each swallowed a cysticercus of the tænia mediocanellata heated gradually to 45 and 47°C., in a convenient preparation upon the table mentioned, and showing no signs of life, neither of these gentlemen had tænia developed in them. Nor did tænia develop in the body of Signor Martini, laureate in medicine, after having swallowed a cysticercus heated up to 44°C., and kept at this temperature for three minutes, though the parasite still made light movements in a part of its neck at the time of its ingestion.

But a student who swallowed a living cysticercus mediocanellata had developed in him a tænia which arrived at such maturity in 54 days as to eliminate the two first proglottides. He passed two more in the fifty-eighth day, and on the sixtieth day thirty more. In 67 days after the ingestion of the cysticercus this courageous youth took kousso and castor oil and ejected a worm of 866 bands without the head and neck, the bands measuring altogether 4·274 meters.

Adding now to the 866 proglottides, the 34 already passed, we have in all 900 bands or wings, and reckoning each at 14 mm. length we have the whole worm, without head and neck, measuring 4.75 meters, computing the head and neck at 8 mm., we have a total length of 4.83 meters.

Whence we may infer that the tænia mediocanellata in this case gained approximatively in length 72 mm. per day, with the production daily of 13.43 bands.

Liquor Amnii in the Middle Ear as a Sign of Live Birth.—Dr. Alessandro Cuzzi, assistant at the Turin Obstet. Clinic derives from a long, illustrated (with cases), study of infanticide, published in current numbers of the Gazetta delle Cliniche, the following conclusions:

1. A gelatinous plug of amniotic fluid may be entirely absent from the middle ear. When it exists it may only incompletely fill the tympanic cavity.

2. In lieu of the gelatinous plug we may frequently observe a liquid colored with hemoglobine, and holding in suspension various histological elements (red globules, embryonic cells of vibratile epithelium, pavement cells, etc.).

3. The presence of elements of the amniotic liquid in the middle ear authorizes us to affirm only that the fetus has suffered in the uterine cavity, but we may not hence declare that it was necessarily dead by asphyxia, before it came to light.

4. The presence of air in the tympanic cavity indicates most certainly that the fetus has breathed: but here two reservations must be made: First, we must be sure that insufflation was not practiced; Second, that putrefaction has not set in, or at least is not thus far advanced.

5. The absence of air in the tympanic cavity does not warrant us in drawing any conclusion.

MUMPS. — Communications concerning epidemic parotitis or mumps, have lately appeared in the Arch. f. Klin. Chirurgie xx, 3, p. 600, by Dr. M. Fehr, and by Chauvin and Juloux in the Rec. de Mém. de Méd. etc., Milit. 3, Sér. xxxii, p. 473—478, from which the following extracts are made:

After enumerating the epidemics of any extent which have appeared in the past century, Fehr takes up the relation between mumps and the acute exanthemata. Harless (1799), and after him Warnekross, Kopp and Horst saw mumps break out immediately after epidemics of scarlet fever. In several cases of mumps there was even desquamation of the epidermis over the body and dropsical swellings. In several epidemics it was observed that the scarlet fever epidemic subsided on the appearance of parotitis. It was observed also that just those individuals were attacked with mumps, who had been spared by scarlatina.

The immediate precedence or simultaneous occurrence of measles has likewise been recorded by Collin, Liverani, Wittke; of small pox, by Laghius and roseola by Rilliet; while the great mumps epidemic of Erlangen (1799) was followed by variola in very dangerous form; and in 1867 parotitis, small-pox and measles were all epidemic at once in Constantinople.

The mumps epidemic at Heidelberg, observed by Fehr, was attended and followed by scarlet fever, and three of his mumps patients were attacked during the disease with an eruption like rötheln (German measles).

That there is therefore, according to Fehr, a certain connexion between these diseases, can not be doubted any more than that the epidemic eruption of parotitis is due to a specific infection.

This view of specificity is strikingly proven by an observation of Rilliet where a girl went from a region entirely free from mumps, on a visit to a relative attacked with it; in eight days later she was attacked herself, and in two weeks communicated it to her brother. But that the infection of mumps, as König maintains, is like erysipelas, communicable to the salivary ducts where it produces catarrh and thence passes into the blood, is refuted by the observation that up to this time no affection of the mouth has ever been seen to precede mumps.

The implication of the different glands is in general very variable, while it is the parotid and sub-maxillary glands which suffer most and the tonsils and sublingual glands more rarely, still in some cases all the cervical glands are also affected and in other epidemics, as in that mentioned by Pranck, the submaxillary glands may alone suffer. It is justifiable, therefore, to regard mumps as an infectious disease in close relation to the acute exanthemata, mumps being especially characterized by acute swelling of the salivary glands, to which in all severe cases is associated an infiltration of the surrounding tissues. Occasionally there supervenes also a more or less painful swelling of the sexual glands. This complication usually develops when the swelling of the salivary glands is in process of subsidence. The organs that suffer are the testicle, more rarely the epidydimus, the prostate, the ovary, breasts and also the labia majora. Sometimes these organs are affected before the salivary glands, and sometimes they alone are affected, facts which sufficiently refute the idea of any metastasis. In several cases the volume of the testis diminishes after the swelling.

Fehr gives the particulars of the disease in his own person. He remarked that the point of departure in the swelling was not from the surrounding cell tissue, but was from the gland tissue itself. In bad cases suppuration may ensue in the surrounding tissue; this accident more frequently happens in elderly people. In ordinary cases the disease consists of a fluxionary hyperæmia of the gland without the peculiar character of an inflammation. To prove that mumps is a disease characterized by a specific alteration of the blood, Fehr mentions the fact that a febrile movement precedes the local manifestations by 2—8 days; also the case cited by Homans, of a woman who was attacked with mumps during labor, and whose child was likewise attacked on the day after its birth. But as the period of incubation of the disease is at least a number of days, the infection must have been effected through the mother's blood. "The mumps," says Fehr, "belongs in its whole being not to surgery, but to internal medicine, and must be included, as Lebert has shown, among the acute exanthematous diseases."

The report of Chauvin concerns an epidemic of mumps among soldiers, in which the complication with orchitis is of especial interest. Of 45 patients 15 were attacked towards the end, and one patient had the testicle and epidydimus affected without any implication of the parotis at all. In six of these cases atrophy of the testis followed. In regard to the etiology, Chauvin believes in unfavorable hygienic and telluric influences. He does not believe in contagion or any transmission of the disease.

On the other hand Juloux proves contagion by showing that the disease always attacks members of the same company or barracks, in numbers at a time. He has also devoted especial attention to the complications on the part of the sexual organs. He found that of 35 cases, 14 were attacked with consecutive orchitis and that in all of these cases a noticeable atrophy of the organ ensued, an atrophy which became more and more pronounced with the lapse of time after the primary affection.—*Schmidt's Jahrb.*, 1877, No. 4.

SULPHUR AND SYPHILIS.—Dr. J. Edmund Güntz (Dresden), announces that the sulphur waters have the power of unveiling a latent syphilis, and making it show itself upon the surface. This author had exhibited this view some time ago, maintaining that the sulphur waters eliminate mercury from the body, and thus permit the still present poison of syphilis to develop itself anew. To demonstrate this fact, he made some experiments in which he succeeded in finding the mercury even when present in only minimal quantities. Since mercury has been found in the liver after death, a year after the last inunction, Güntz maintained that it does not cease to be present in the body because it is no longer eliminated from it. He thereupon made some experiments to ascertain if sulphur would not cause it to reappear after it had ceased to show itself in the urine. In fact this did happen in a series of cases, sometimes in ten, at the latest fourteen days after the administration of the sulphur water. In one case this excretion of mercury continued up to the eighth week after cessation of the mercury. Mercury is present in the body as an albuminate, and sulphur water produces a decomposition of the albuminates, which may be recognized by temporary anæmia and reduction of the size of the liver and spleen, as well as by an increase of urea. The urea may indeed be doubled in quantity under its use. This increase of urea after sulphur water, may be applied in part by the increased absorption of water, but this explanation is not wholly sufficient, for it was found that even when the quantity of sulphur water given was lessened, there was still an increase in the urea excreted. Besides the property of the sulphur waters of extracting oxygen, partly accounts for the increase of the urea. This withdrawal of oxygen, which excites decomposition of albumen in a remarkable degree, is increased by the lowering of the action of the heart and of respiration, as noticed after the use of sulphur baths.

The contagium of syphilis, according to Güntz, is located in the albuminates in general, and is not exclusively fixed in any way in the blood corpuscles. Syphilis has been communicated by the subcutaneous injection of the milk of a syphilitic patient and the semen may transmit it even when the blood will do it no longer, that is, after the disease has became latent.

When now the albuminates undergo decomposition, the syphilis contagium inherent in them is put under different conditions and relations, and comes to be associated with other organic elements. So long as the syphilis contagium is still capable of being seized upon by organic elements, so long syphilis remains in the body. When it can no longer be absorbed, it ceases to be viable and is in some way or other removed from the body.—*Med. Neuigk. f. Prakt. Aerzte*, July 41, 1877.

THE COLORLESS CORPUSCLES IN THE BRAIN IN TYPHOID FEVER.—To prove the statements of Popoff, that the brains of individuals who die of typhoid fever in the second week of the disease contain colorless blood corpuscles heaped up about the ganglion cells to occasion an active proliferation of the nerve cells, Herzog Karl v. Bayern, of Munich, examined a great number of brains of typhoid fever patients at various stages of the disease, and also brains of individuals who died of other diseases, and two healthy brains, one of a decapitated criminal, and the other of a man killed by a stab. Preparations were made both with carmine tincture, according to Popoff's method, and with the much sharper tinct. given by aniline.

The author found in the second week a heaping up of the colorless blood corpuscles in the lymphatic spaces of the brain substance, in the so-called peri-vascular lymph spaces, in the advantitious canals of Robin, and in the spaces about the isolated ganglion cells. He could thus fully confirm Popoff's statements.

But the round cells never failed in the other stages of typhoid fever, or in the brains of individuals dead of other diseases, and they were present also in one of the healthy brains. Anything like a nucleus proliferation of the ganglion cells was never observed. There seemed to be a direct dependence of the colorless cells upon the retardation of the circulation in general and an impeded discharge of the venous blood into the right heart in particular.

The author therefore ascribes the accumulation of the colorless cells to a retarded blood current, and the associate increase in the water contents of the brain, and their grouping about the ganglion cells is due to the communication existing between the periganglionic spaces with the lymph canals.

The brain symptoms of typhoid fever do not depend therefore upon the presence, nor upon the increase of white corpuscles. They can be referred only to a sudden retardation of the circulation and increase of water in the central nervous apparatus.—*Virchow's Archiv*, vol. 69, p. 55.

ACUTE ENDOCARDITIS.—At the session March 19, 1877, of the Niederrheinischen Gesellschaft f. Natur und Heilkunde, medical section, Köster delivered a lecture on acute endocarditis, in which he recognized two forms of the disease; one ulcerating or diphtheritic, the other granulated or papillated. In the first case there is necrotic or ulcerous defect in the tissue of the valves, in the latter real tissue excrescence from the surface of the valves. This latter form, the granular, from an anatomical standpoint, should not be regarded as an acute endocarditis. In ulcerating endocarditis, neither the ulceration nor the inflammation is the primary condition, for in perfectly fresh cases we always find, (what has as yet however, been demonstrated but a few times by Heiberg, Eberth and others), a granular deposit consisting for the most part of micrococci. The first effect of infection with micrococci is here, as in miliary abscesses of the kidneys, heart muscle and other organs, the development of a necrobiosis. Thereupon ensues a reactive inflammation either in the form of a suppuration with or without ulceration, or with a granulation which develops slowly and sometimes only upon an ulcerated ground.

Thus both forms of endocarditis are more or less indirect effects of microccocus infection. But the micrococci are deposited, according to the lecturer, not from the blood which plays over the valves, as hitherto believed, but from the blood in the coronary arteries, whose terminal branches carry them peripherically as far as possible. Some of them remain in the coronary capillaries of the muscular structure and produce the so-called miliary embolic abscesses. The anatomical arrangement of the vessels of the valves is very favorable for embolia, as all these vessels run from the line of insertion of the valves, and from the papillary muscles, through the tendinous cords, towards the so-called line of closure or the noduli and here form a capillary circle. The permanent anæmia of the vessels of the valves and the mechanical tensions favor the propulsion of the micrococci into the vessels mentioned. Here they soon manifest the effects above described in the substance of the valves, or they penetrate the vessels and surrounding tissue to reach the free surface, where they proliferate abundantly and form the so-called deposit.

Thus acute endocarditis is the same thing as the miliary abscess, viz.: a micrococic embolus and its effects upon the tissue of the valves.

TUBERCULAR MENINGITIS. — Few affections have had such different titles as tubercular meningitis. This disease, first regarded as a hydrocephalus acutus (Whytt 1777), later as a simple inflammation (Quin 1780, Ford 1790, Gölis 1815), was then considered a granular inflammation (Senn, 1825), and finally (Papavoine, 1830), a tubercular meningitis. The last view has held until now, and we are accustomed to look upon this disease, once regarded as such an "acute" affection, as only the last phase of a chronic process. Dr. H. Bertalot makes some instructive remarks, based upon 24 cases at Heidelberg dispensatory, on the etiology, course, symptomatology, differential diagnosis and anatomical condition of this disease. Tubercular meningitis is always preceded by prodromata, and in the rule a scrofulo-tuberculous diathesis may be established. Bad nutrition (hence its frequency among rachitic children), and heredity (in 50 per cent. of Bertalot's cases) play a great role in etiology. The male sex predominated among the author's cases; 18 cases were between 1—5 years of age, inclusive; 6 between 9—14 years, inclusive. So advanced age does not exclude it. The youngest child affected was aged 10 weeks, the oldest 14 years. The colder season (late autumn, winter, spring) makes the most sacrifices.

Bertalot divides the symptoms into two stages: First, symptoms up to disturbance of consciousness (threatening and beginning meningitis), second, symptoms after disturbance of consciousness (transudation in the vertricles, paralysis).

The prodromata are signs of a gradually developing phthisis (Rilliet). Sometimes Bertalot found, notwithstanding the chronicity of the symptoms, only tuberculosis of the bronchial glands; in one case of chronic coxitis, only emaciation. Other prodromata (properly initial symptoms) are cerebral; sleepiness, vertigo, frightful dreams, headache, photophobia, mental distraction, forgetfulness and a peculiar, uncertain gait. Bertalot also emphasizes, with every other children's physician, the well-known inconstancy of the symptoms and the not unfrequent remissions. All the characteristic symptoms are almost never present at the same time. Among the most constant are vomiting (absent only twice) and constipation (absent four times), further the gradual sinking of the abdomen (absent three times). Fever, which may introduce tubercular meningitis, was high at the start in only one case, being treated for phthisis already developed. The characteristic gradual retardation of the pulse was entirely absent in three cases, while in five cases "the pulse vibrated under the finger like a bass-viol string" (Barthez and Rilliet). Sometimes in the later course of the disease marked retardation of the pulse set in, with great increase of temperature, (however never over 39.5°C), but this coincidence was not as common as Whytt maintained. The quick color changes in the skin were quite remarkable, especially in the face, while the meningitis stripes of Trousseau were not always present. Respiratory frequence was different, but was finally always reduced, even in tuberculosis of high degree, (loud sighing) Stokes respiration.

Headache was the rule (absent but once). It occurred early and was of different severity and duration. It was mostly frontal, and gave rise to the Coindet's hydrocephalic cry.

Remissions in the course of the disease are caused by partial resorption of the ventricular transudation, which is almost as clear as water and contains only traces of albumen.

The motor nervous system also presents a train of symptoms. They consist of general convulsions or muscular twitching, (contortions of the face, smiles, winkings, mastications, with or without grinding of the teeth and turning of the eyes; mostly also strabismus).

Tetanic contraction at the back of the neck sets in only towards the end. These symptoms then extend gradually to general convulsions, which mostly affect one side more than the other. Paralyses were much more rare. Retention of urine is caused by paralysis of the bladder (Vogel says paralysis of the secretory nerves), and the author was compelled (in how many cases?) to empty the bladder with the catheter. (Kormann observed a case of this kind).

On the part of the organs of sense there was early photophobia, whose disappearance was attended by dilatation of the pupils. Just before death, contraction of the pupils sometimes set in.

Bertalot was never able to discover oscillatory motions of the iris (Odier), or hypertrophy of the papilla at the bottom of the eye (Bouchut), or choroideal tuberculosis (Manz, Cohnheim).

The duration of tubercular meningitis is from eight days to fourteen weeks. The latter cases are the most distressing in all medical practice.

As to the differential diagnosis, Bertalot remarks that meningitis simplex is much more rare. It occurs also suddenly in children previously perfectly healthy, and its course is very rapid. Typhoid fever also is more rare than tubercular meningitis and is rarer the younger the age of the child. Notwithstanding the great diversity of symptoms in typical cases of these two diseases, still there are occasionally cases in which typhoid fever and meningitis are confounded. With prodromata of acute exanthemata and gastric disturbances, any confusion of the two diseases would be short.

The anatomical conditions in Bertalot's cases were those as usually described. Besides the gelatinous exudation in the pia, there were, especially numerous in the Sylvian fissures, disseminated or grouped miliary granulations. Sometimes these granulations were distinctly disposed along the lines of the vessels. Similar tubercular pictures were nearly always found in other parts of the body, regularly in the parenchyma of the lungs, seldom in the pleura, and in increasing rarity in the liver, spleen and its serosa, kidneys, intestinal canal, peritoneum and mesentery In only two cases were tubercles demonstrable in the pia. Nevertheless tubercular meningitis is to be regarded as only a partial manifestation of general tuberculosis (Hessert). Cheesy masses were demonstrable in every case. There were twenty cases of tuberculosis of the bronchial glands among which was that of the child ten weeks old. This case must have had the disease during gestation, from which the author draws the conclusion that tuberculosis is not inherited as such, but as scrofulosis, which however, always carries in itself the danger of self-infection.

The author again emphasises the closeness of the dependence of acute miliary tuberculosis upon the scrofulo-tuberculous diathesis. Once only he found caseation in the mesenteric glands, three times in the substance of the brain. Dropsy in the ventricles of the brain was absent in no case, and the ependyma was always sown with tubercle granulations.

The prognosis is fatal, although the cure of miliary tubercle by atrophy and caseation is possible. Lebert mentions two cases of cure, and Rilliet, Gerhardt and Henock saw children survive the first attack to succumb to one later (confirmed by autopsy).

The treatment of Bertalot's cases consisted — so soon as the diagnosis was assured—in ice-bladders to the head, venesections behind the ears, friction with gray ointment upon the scalp and other parts of the body. For the constipation the author used inf. sennæ comp. or calomel; for great excitement and delirium, morphia; for sopor, cold douches and excitants. The iodide of potassium had no effect.—*Jahrb. f. Kinderheilk.*, N. F., LX. 3 p. 227, 1876.

THE ELECTRICITY OF THE HUMAN BODY.—It has been long known from positive and conclusive facts that the human body is charged with electricity in the high altitudes and excessively dry atmosphere of the plateaux of the Sierra Nevada and Rocky Mountains. But it is not so generally known that the accumulation of this electricity may cause very great danger to persons carrying explosive substances.

Two grave and distressing accidents occurred a few months ago at the entrance of the Sutro tunnel, both occasioned by the sudden explosion, in an incomprehensible manner, of a quantity of priming powder in percussion cases.

In the first instance, M. Henry L. Foreman, a man of high culture, a former attache of the telegraphic service at Washington, was examining the cases when 200 of them exploded, blinding and dangerously wounding the unfortunate man. The cases were large copper priming capsules for cannon, each an inch long, charged with fulminate of mercury.

The second accident occurred only a few weeks ago and almost under the same circumstances, at the same place, whereby Thomas Coombs lost his hand and a part of his left arm. He was engaged in packing away ten of these cases, when all at once and without apparent cause, they all exploded, mutilating their victim so cruelly as to render necessary immediate amputation.

These accidents led M. Sutro to undertake a series of experiments with a view of determining seriously the cause of the inexplicable explosions. This investigation has led him to believe that they were due to electricity disengaged from the human body and it was to confirm this idea that he commenced his experiments

The experiments were made as follows: Having insulated a package of cases upon a piece of carpet, he connected with them metal wires of length sufficient to remove the operator from all danger. He now walked up and down the chamber a few minutes and then held a knuckle to the end of the wire, whereupon an explosion followed at once.

This experiment was repeated a number of times with different explosive apparatus, such as those employed by the San Francisco Company, and those of the Electrical Construction Company, and always with the same results. They go to prove that explosive machines may be discharged by the electricity accumulated in the human body.

Instructions were therefore given to the entire *personnel* of the tunnel. All the men were furnished with boots which were conductors of electricity, and were ordered to wet the boots before entering the tunnel where the explosive material was placed. By taking thus this simple but highly scientific precaution a repetition was prevented of the accidents which rendered Messrs. Foreman and Coombs victims for life.—*La France Medicale*, June 13, 1877.

DELIRIUM TREMENS.—Dr. Weinberg has observed in 51 out of 156 cases of delirium tremens the exact coincidence of the delirium with albuminuria. But in no case were any pathological form elements present in the urine to indicate disease of the kidneys. There is therefore nothing left than to ascribe the transitory albuminuria to the disturbance of innervation.

Therapy is essentially symptomatic, in many cases purely expectant. Patients in delirium are isolated, fed with nutritious food, and according to their nutrition with small doses of alcohol. In about 30 per cent. of cases chloral hydrat. was administered. When this agent is given in the last stage of the delirium, it has almost regularly the desired result. In half an hour sleep sets in, out of which the patient awakens with clear consciousness, and recurrence is rare. Under this management the duration of the delirium is lessened, averaging in 60 patients two and a half days.—*Deutsche Med. Wochenschrift*, 1877, No. 17.

WHAT DETERMINES THE PITCH OF THE VOICE?—It is not the size of the vocal cords that determines the pitch of the voice. Just as little does the construction of the remaining parts of the larynx exercise any influence upon it. Nor is the height or depth of the voice regulated by the length or width of the trachea or the angle which it makes with the larynx; it is not the shape of the thorax, nor the width of the mouth, nor the form of the tongue, nor the shape or size of the posterior or anterior nares. The pitch of the voice *is determined by the form of the larynx and cavity of the mouth*. The higher the roof of the mouth, and the more vaulted the oral part of the pharynx, that is, the higher the highest part of the hard and soft palate stands above a line drawn from the free border of the upper incisors towards the posterior wall of the throat, the deeper is the voice. Löri has convinced himself of this fact, in opposition to all views hitherto maintained, by years of continued observation. The changing voice of puberty, when the voice of the boy deepens, depends upon the fact that at this time the roof of the mouth is raised. The voice is musical according as the vocal apparatus is in harmony with the resonating apparatus.—*Pester Mediz. Chir. Presse*, 1877, No. 3.

AN ITALIAN TRIBUTE TO SIR WILLIAM FERGUSON. — England has lately lost a great surgeon, and science has had eclipsed forever one of its brightest lights in the death of Sir William Ferguson. It may be said of him that he was a surgeon born. Few equaled him, and probably no one surpassed him as an operator. His skill was something extraordinary. Hand, eye and brain moved and acted with him in unison, nature having endowed him with rich gifts, in this regard, which no art or special preparation could have possibly created. However, much it may seem a paradox to the unprofessional reader, it was true that it was a great opportunity to see him operate, as it was a struggle with him between human weakness and courage.

There was, on the one hand, suffering and pain, and on the other hand, judgment, skill and courage to alleviate and remove it. His hands were endowed with strength, delicacy and sensibility and his muscular sense was perfect.

Like many of his predecessors, Sir Astley Cooper, for instance, and William Lawrence, Ferguson had the aspect of dignity and command expressed in the gentlest lineaments, and his large black eyes glistened with benevolence and sweetness.

He was never in a hurry. He affected no kind of mannerism; his firmness and self-confidence imparted an indescribable moral support to his patient, whom he always addressed before his operation with a few words of sympathy and encouragement, accompanied with a gentle smile and a peaceful glance from his great black eyes. The patient thus rendered insensible to pain, he executed the work before him with a delicacy and decision which always revealed the master's hand.

But to say that Ferguson was an excellent operator is only to repeat what every one knows, and is only a fragment of the eulogy which is his due. He was enterprising, safe, practical and eminently conscientious as a surgeon, as he was of sound sentiment and much modesty as a man. Firmness of character, of mind and of undertaking conjoined with keen perceptions, and a grand experience, made him a safe surgeon, while his designs, methods and principles, with his mechanical skill, made him a great surgeon, the practical surgeon, *par excellence* of our times. He did not possess the genius of Syme, who however, had less love of operations, due probably to his intellectual force and concentration of character; but Ferguson was, as Syme has said, the last of an illustrious line of men whose connection with the Edinburgh School constituted an epoch in its history.

Ferguson left behind him a great name as a surgeon, and his disciples, like Liston, will use it as a standard of comparison when they come to pass upon the merit of an operator. In his teachings he carried in the front the banner of practical and conservative surgery. With his own hands, he did a world of good to suffering humanity and the practical value of each of his works will hand down his name to his successors as well as to those of his contemporaries who never met him.

His first publication was his "Practical Surgery," a work which in a very short time reached the fifth edition and soon established his reputation. Among the operations which obtained him merited fame, special mention should be made of those for vesical calculus and fissure of the palate. In 1834 he devised the keyed lithotrite which substituted the crusher of Heurteloup. In 1845 he exhibited to the Medico-Chirurgical Society his operation for cleft palate, and by means of dissections demonstrated that the obstacle to success lay in the muscular action of the elevators of the palate, to divide which was the first step to secure union of the borders. A few years sufficed to furnish the most splendid results in fissures complicated by cleft in the bone. This method, which was proposed almost at the same time by Dieffenbach, consisted in approximating the osseous borders, paring them and uniting them by sutures. In 1845 he renewed upon the field of surgery the operation of excision of the head of the femur in cases of incurable disease of the coxo-femoral articulation. In 1847 he undertook the operation of extirpating the entire scapula in a case of extensive disease of the bone, when amputation of the arm had already been decided upon, obtaining a good result. In 1850, extending his principle of conservative surgery, he directed his attention to the surgery of the tibio-femoral articulation, effecting a great revolution in the treatment of this joint. In such cases he greatly reduced the number of amputations of the thigh by resorting in favorable cases to excision of the joint. To give an idea of the great opposition he encountered in this innovation, I recall the occasion when he stood ready to perform it in the amphitheatre of King's College Hospital, when one of his surgical colleagues publicly protested against it. Ferguson administered a quiet reproof to his impertinent colleague and proceeded with his operation. In 1864—65 he gave a course of lectures in the amphitheatre of the College of Surgeons, on the progress of anatomy and surgery in the past few years. These lectures were published in a volume which is highly prized by all practical surgeons.

These were the last works of Sir William Ferguson. It was in Sept., 1875, that the first indications of bronchial irritation came to sadden his days of vacation in his beautiful country home at Spittlehaugh, in the county of Peebleshire. The disease relaxed at intervals, but only to become gradually more and more severe, until at last dyspnœa and cough robbed him of sleep. Delirium now supervened and on the night of February 10th, he ceased to live.

His friends, his pupils and many scientific men will long remember him, frank and honest, generous and expansive. He never indulged in the gossip of envy, and there was no avarice in his composition. His presence at a difficult operation was a bulwark of safety to many of the younger surgeons. No one was more esteemed, or more generally loved than Sir William Ferguson, for he was not only a born surgeon, he was also a good man.—DR. L. MARTINI, *Gazetta delle Cliniche di Torino*, March 20, 1877.

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Editorial.

THE ACADEMY OF MEDICINE OF CINCINNATI.

A Brief Historical Sketch and By-Laws of the Academy of Medicine of Cincinnati, O. August 1877. Prepared by A. G. Drury, M. D., Recording Secretary.

To the medical profession in and around Cincinnati, this is a very interesting little pamphlet. As it is a brief sketch of what has been for twenty years the leading Medical Society of this vicinity, in fact during seventeen years of that time it was the only regular Medical Society in Cincinnati. Consequently, its membership has embraced nearly all the active practitioners in Hamilton County and the adjoining cities of Covington and Newport, Ky.

The members of the Academy have really been the representative working-men of the profession in this locality. From *The Sketch* we gather some interesting statics.

Since its organization (March 5, 1857), there have been enrolled two hundred and seventy five members. Of that number forty are dead, forty-six resigned, fifty two have removed, and are no longer residents of the city or immediate vicinity, leaving at this time an active enrolled membership of one hundred and thirty seven. Of the forty who are dead, seventeen were over sixty years of age. Nine were between the ages of forty and sixty years, and fourteen between twenty five and forty years of age. Six of the forty had removed from this vicinity one or more years before death. All those who were over forty years of age at the time of death, died from natural causes (disease). Of the fourteen who were under forty years of age, two had removed from this vicinity, of the other twelve, five died from disease, and seven by suicide.

Here we have a subject worthy of the most serious consideration; more than half of those who die under forty years of age are suicides, while those who pass that period of life seem to be exempt from the causes that produce this distressing mode of death.

The motive for suicide is often extremely difficult to ascertain, but is most frequently on account of insanity, disease, grief and remorse, domestic trouble, disappointment and failure in the great struggle for support. The ulterior motive for suicide in every one of the seven young members of the Academy of Medicine can never be discovered, but we are justified in believing that lack of anticipated professional and financial success had much to do in determining the fatal result in every case. *None were insane.*

That there should be a mortality from suicide alone of seven out of a total number of two hundred and seventy five chosen men belonging to any pursuit in life, should be a sufficient cause for inquiry as to the predominant motive that urges its members to self-destruction. We look a little further and find, of the two hundred and seventy five members of the Academy of Medicine, the Secretary has marked fifty two as having removed from the city, to which should be added twenty who resigned prior to removal, or entering other pursuits. So there is a total of seventy two removals from the city, out of a membership of two hundred and seventy five. In looking over the names of those who have removed we observe the following facts: the individuals were nearly all quite young men at the time of removal, nearly all under thirty years of age: the cause of removal in almost every instance among the young men was a failure to obtain the barest livelihood from the practice of their chosen profession; they were literally starved out.

Another unpleasant observation brought to mind in this connection is, that some of the most eminent men in the profession who have lived and died here, have, on account of poverty, either been buried at the expense of the profession, or their families been obliged to appeal to the members of the academy for aid in order to keep the wolf from the door; fortunately, such cases have been few in number, but that they should ever occur after a man had attained a world-wide or even a state reputation for eminent ability, is certainly remarkable.

Of the one hundred and thirty seven members of the Academy who are actually present and engaged in the battle of life, a very few have succeeded in acquiring a competence, a large number have a living practice, while with very many, the problem of a city practice is unsolved, with the chances greatly against their success.

The great bread and butter question is one of the most important themes of the day, it keeps up a never ending process of conscious cerebration, men are obliged to heed its admonitions, and strike for other pursuits or fields of labor.

The above is a plain statement of the financial situation of the medical profession in Cincinnati; there is in it several morsals, besides some whole chunks of food for thought, that may be chewed, and chewed, and chewed, over and over again by the doctor who has determined to swing his shingle in the alluring breezes of the Queen City.

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Reviews and Notices.

Messrs. Lindsay & Blakiston have just issued a new, alphabetically arranged Catalogue of their Medical publications. The price list shows a reduction to suit the times. Their *Physician's Visiting List* for 1878 is already on our table. This is its twenty seventh year of publication, and although it has had a number of rivals, it holds its own as one of the most useful and popular publications of this character. Order from any bookseller or from the publishers direct. The Catalogue will be sent free of charge to any one making application to the publishers.

Napheys' Therapeutics.— Already the edition of this work which was published at the commencement of the present year is *entirely exhausted*. No higher testimony to its worth could be given. It recommends itself at once to every physician who sees it. As was remarked by the New York *Medical Record*: "As a handbook of Therapeutics, pure and simple, it is invaluable to every practicing physician;" and the reason was well stated by the *American Medical Bi-Weekly*: "In no work can the practitioner learn so easily as in this one the favorite medicines used in treating diseases, and the best methods of compounding them."

A new edition (the *fifth*) is in active preparation. The editor has been assisted by several very competent gentlemen in special departments, and the work has received a most thorough revision, and very large additions. Indeed, so extensive are the latter, that the two parts into which the work is divided, viz: 1, Medical Therapeutics, and 2, Surgical Therapeutics, will each make a volume by itself, quite as large as that which embraced both divisions in the last edition (about 600 pages). They will be printed on handsome tinted paper, in the best style, and each part, as wholly independent, will be sold separately if desired.

Original in design, and carried out with vast research, this work may justly claim precedence in real, practical, everyday value, over any others ever issued by the American Medical Press.

DR. JOSEPH D. BRYANT, has been appointed Lecturer on General Descriptive and Surgical Anatomy in Bellevue Hospital Medical College, *Vice* Professor A. B. Crosby, deceased.

THE THIRD ANNUAL SESSION of the Indiana, Illinois and Kentucky Tri-State Medical Society will be held in the city of Evansville, Indiana, at 11 A. M., on the 3rd Tuesday, Wednesday and Thursday in October, 1877.

President: W. H. Byford, A. M. M. D., Chicago, Ill.; 1*st Vice Pres.:* C. L. Dismukes, M. D., Mayfield, Ky.; *2nd Vice Pres.:* G. G. Barton, M. D., Washington, Ind.; *Recording Secretary:* G. W. Burton, M. D., Mitchell, Ind.; *Coresspondiny Sec'y:* F. W. Beard, M. D., Vincennes, Ind.; *Treasurer:* A. Patton, M. D., Vincennes, Ind.

Section on Surgery and Anatomy:—J. W. Thompson, M. D., Paducah, Ky , chairman; J. H Letcher, M. D., Henderson, Ky., secretary.

Section of Obstetrics and Gynæcology:—J. A. Ireland, Louisville, Ky., chairman; S. H. Charlton, M. D., Seymour, Ind., secretary.

Section on State Medicine and Hygeine:—J. W. Compton, M. D., Evansville, Ind., chairman.

Section of Practical Medicine:—J. F. Hibberd, M. D., Richmond, Ind., chairman.

J. W. COMPTON, M. D.,
Chairman of Committee of Arrangements.

PROF. POOLEY, of Starling Medical College, Columbus, has accepted the invitation to complete the course of Lectures on Surgery, at Dartmouth, commenced by the late Prof. Crosby.

Prof. Pooley does not contemplate a change of residence, but will return to Columbus on the opening of the session at Starling Medical College.

The following Card is published by request of Dr. Z. C. McElroy:

Classification of Medicines, or Remedial Agents.

I am one of those who think that time spent in discussing claims of "priority" is neither wisely or profitably spent. I do not, therefore, propose to enter upon any such enterprise. But a brief exploration of the foundation of my "claim," if I have any, as author of the classification of medicines, as they "promote or retard constructive and destructive metamorphosis" of living tissue, or flesh, may neither be impertinent, or out of place. This seems to be demanded of me by the "card" of Prof. Bartholow in the *Clinic* for 28th July, last.

My allusion to it at the close of the clinical report of "What Medicine offers for the Relief of Common Drunkenness," in the Lancet & Observer for July, last, was not strained, but natural, and to the point in the connection in which it appears. The somewhat remarkable therapeutic results of certain medicines used in the treatment of the case of chronic drunkenness there reported, and commented on, were explained in that way, viz: as they influenced nutrition and waste.

In the introduction to my monograph on "How do Medicines produce their Effects?", in which the classification was published for the first time, for which I claim priority, every effort was made to give credit to those from whom I had derived any assistance, as the following extract will show: "The origin of this essay was the hypodermic syringe. The effects following the introduction of a solution of morphia beneath the cuticle arrested my attention on account of their resemblance to modern electro-magnetic telegraphy. Some years previous Prof. Draper's Physiology had convinced me that therapeutics would some day become an exact science. About the time the hypodermic syringe was first used by me, (in 1863) the idea was conceived of working out the problem of 'How do medicines produce their effects?' The year following the essays of Grove, Mayer, Helmholz, Joule, etc., on the continuity of force, were attentively studied, and the purpose of the previous year was greatly strengthened; but no progress was made until some Lectures by H. Bence Jones, published in Braithwaite, met my eye. This, with the empirical facts of Bennett's Clinical Lectures, as well as Chambers' work on Digestion and its Derangements, and his subsequent work on The Renewal of Life, gave definite course to my investigations. Perhaps other circumstances not now recollected aided me, but nothing impressed me so vividly as the results of hypodermic injection."—Page, 1.

In fact, I studied nature quite as much as I did books, perhaps more. With the correlation and conservation of energy to guide me, it was a fascinating study. Besides, I was aided much more from outside, or non-professional scources, than by recognised professional works.

It will be seen, therefore, as Prof. B. suspects, I had studied Chambers, as well as Bence Jones, etc., when I published my classification. Neither Bence Jones nor Chambers proposed a classification of all remedial agencies, as they influenced "Constructive and Destructive Metamorphosis." And but for the hypodermic syringe, I would not, in all probability, have done so either.

Prof, Chambers did not present the action of medicines as they influence constructive and destructive metamorphosis, as a classification which would absorb all remedial agencies, whether medicinal or otherwise.

That is just what I did do in my monograph. And I have every reason to believe that Prof. B. is one of the first, if not the first, to adopt it, in whole or part, in an English text book. It is not yet accepted by the profession, as a body, though Prof. B. has taken the lead; and it further seems to me that the profession has no alternative, no choice, in the matter, they must adopt it, not his, but mine, sooner or later, because it corresponds with, and expresses the great facts of nature. And I am glad to notice in the annual announcements of many Medical Colleges; that Prof. B.'s book is put down as a text book. All the facts that Prof. Bartholow urges against a claim in my behalf to originality of the classification of all remedial agencies as they influence, by advancing or retarding constructive and destructive metamorphosis, are, as has been shown by the extract, expressly and fully stated in the introduction to my monograph. I may have a good and valid claim to originality, or I may not. He has not made good his case against my claim, because all that he alleges against it are admitted in my introductory remarks.

Further, so far as I can glean information, I am the only medical writer who has carried out the new doctrine into actual clinical experience, showing its practical working to be symmetrical and harmonious at the bed side. I have in more than half a hundred published papers illustrated it, both clinically and scientifically.

When first arrived at, it seemed to me to be so wide a departure from the recognised course of the profession that I hesitated to publish my conclusions, I did not hesitate to read them to the local medical society of which I was a member. Even there I was jibed and jeered enough about them. But I am not of the stuff which jibes and jeers can turn aside from what I am convinced is correct.

To ascertain exactly what was the state of professional opinion in regard to the action of medicines, I made a synopsis of my monograph, and sent it to Prof. Draper, of N. Y., whose replies to that, and some others, are as follows:

University, Washington Square, New York, Oct. 10th, 1868.

Dear Sir:

I hope you will publish your other essay "How do medicines produce their effects," so that we may all have the opportunity of learning your views, which appear to me very philosophical and ingenious. You cannot do better than to print them in the Journal you have already resorted to. In that manner they will be brought to the knowledge of the profession generally. I should advise this without any great delay, so that you may not risk others anticipating you.

With thanks for kindness in sending me the journal, I am with great respect, Yours truly,

Dr. McElroy. JNO. W. DRAPER.

University, Washington Square, New York, Oct. 26, 1868.

Dear Sir:

I have been much occupied during the past week, and had no opportunity to read your letter with the attention it required until yesterday. As the result of that reading, I still retain the opinion that you ought to publish in some periodical which would bring it before the profession. The plan you mention of offering it to the American Medical Association for 1869, has, I think the drawback, that papers so presented to public bodies are smothered for a long time, and perhaps burned in a mass of rubbish.

There is so much that is original in the views you present, that I think you would do best to resort to some well circulated periodical. Even if you could find a publisher who would print it as a monograph, the circulation would necessarily be limited, and you would run the risk of having what is novel. pirated. Yours Truly,

Dr. Z. C. McElroy. JNO. W. DRAPER.

University, Washington Square, New York, Jan. 18th, 1869.

DR. MCELROY,
Dear Sir:

I have been so much engaged, that I could not find opportunity to read carefully your pamphlet on "The dynamics, principles, and philosophy of organic life," until last evening.

I can only say that I have read it with much gratification, and consider it exceedingly creditable to you, both from a medical and philosophical point of view. The consequences seem to me to come logically from the premises you lay down.

I wish you had added at the bottom of page 21 a reference to the phenomena of the gymnotus, and other electrical fishes, which, beyond a doubt, secrete in their brain an electrical current.

I don't see but that your classification, founded in the conception of constructive and destructive metamorphosis, may be carried out vigorously in detail, but you must not suppose that your ideas will receive the assent of any but the most progressive physicians. Nevertheless, do not be discouraged, but continue the study of your theory.

The instances you present of morphia, chloroform, strychnia, are full of suggestion. I think, however, that there is an oversight in the statement (p. 31.) respecting iron. It is true that hæmatin carries oxygen into the system, but the blood plasma, in virtue of its containing phosphate of soda, brings out the carbonic acid.

However, that is a small matter. Please accept my best thanks for the pleasure you have offorded me.

Yours truly,

JNO. W. DRAPER.

It will be seen that my classification was entirely novel to one who was probably thoroughly posted in regard to the state of professional conclusions in regard to the action of medicines. It will be noticed, too, that he foresaw that my claim to originality would be disputed, and hence urged early publication.

It is true, as Prof. B. states, that I did receive from him a note, warning me that my classification was not original. I regret I cannot find the note, so that I could copy it here. But I knew better, as I will now proceed to show.

In addition to addressing Prof. Draper, I addressed various other parties, who were in positions to know what was, and what was not original.

The first is from Prof. John J. Reese, of the University of Pa., Phila.

Philadelphia, Feby. 9, 1869.

DR. Z. C. MCELROY,
My Dear Doctor:

I am duly in rec't of your last favor of 14th inst. Let me reply by first answering your questions:

(1.) "How much of my (your) philosophy in regard to the modus operandi of medicines is new to you (me)?"

I reply, I have, of course, long been acquainted with the *fundamental principle* of remedies acting upon the constructive and destructive metamorphosis of the body, but I very frankly admit that your very simple *generalisation*, founded on this beautiful principle, is quite new to me.

Your second inquiry "How much of the spirit and purpose of my (your) monograph is new to you" (me)?, may be answered in a similar manner. Many of your ideas are certainly *original.*

As regards the *third* question: "How much of it will stand the test of experience?" I believe that as the *great principle* running through the whole, is *true*, experience will only strengthen and confirm it.

Ever your friend,

J. J. REESE.

Prof. Reese gives no uncertain answers to my questions, which cover my "claim" to originality. And he was then, and is now, in a position to know what is, and what is not, new.

I have a large mass of letters received at that time, some of them voluntary; others called out by letters from myself. I select the following.

"Watson's Practice," is well known to the profession. An extract from his address forms part of the introduction to my monograph. The following is part of his letter acknowledging the acception of a copy:

16 Henrietta Street, Cavendish Square, W. London, Apr. 5. 1869.

Dear Sir:

Please to accept my best thanks for the copy you have been good enough to send me of your "Valedictory address" "on the dynamics, principles, and philosophy of organic life." I have read it with much interest, I do hope and believe that we are gradually approaching to simpler and truer views both of the nature of disease and the effects of medicines. * *

Believe me, Dear Sir, Your faithful and obliged servant,

THOMAS WATSON.

Philadelphia, March 29, 1869.

My Dear Doctor:

You will, I am sure, pardon my apparent neglect in not acknowledging at an earlier period, the receipt of your kind letter and your excellent brochure on "The Dynamics, Principles and Philosophy of Organic Life." Winter is especially a very busy season with me, and leaves me literally no leisure for anything outside of my immediate duties.

I have perused your paper with much interest, and have put it aside for a more careful study during the summer. It affords much food for reflection, and does you great credit as a thinking man and medical philosopher. The mode of action of remedies must always, to a certain extent, be a mystery, and it will remain for the future ages to determine how far unassisted nature is capable of curing certain diseases. I say certain, for there are, as every body knows, quite a number of maladies over which medication, however judiciously and skillfully directed, exercises no influence. I have great confidence in remedies; I am far from being a skeptic, and yet I sometimes think that rest of mind, body, are part, with proper ventilation, food, drink, ablutions, and other hygienic measures, is three-fourths of the battle. We still give too much medicine; and too often and too decidedly disregard the operations and promptings of nature. We are constantly revolving in a circle, and are essentially the creatures of authority, and of fashion. Like the camel, we rest patiently under our burden, and chew the cud of contentment.

I wish your paper could be circulated far and wide, since its perusal could not fail to inspire new zeal and new thoughts in the professional mind. Every paragraph is suggestive of progress in the right direction; and it is a pity so much good, strong, sterling common sense should be lost to the world. I pray you to elaborate your views and experience into a more stately form, and present them to us in a handsome monograph. Such a work is much needed, and would have a wide circulation.

Very truly your friend,

Dr. Z. C. McElroy. S. D. GROVE.

But it is not necessary to multiply evidence. I believe Prof. Bartholow was mistaken in 1869, and is mistaken now. In a word, I am sure that the sweeping of all remedial agencies and measures into a classification as they promote or retared constructive and destructive metamorphosis in living bodies, was, and is, original with me; that I was then, and am now, the only medical writer that advocates it, as a whole, and illustrates it clinically.

I am in no hurry about the final verdict the profession will render in the matter. For, when it is rendered, I will have passed that bourne from whence no traveler ever returns to give a report. And whether for or against me, can then make little difference.

I repeat, again, that Prof. B. made a mistake in not, like myself, giving credit to whom credit was, or is supposed to be due, for so much of his "schema," as relates to, or embodies my generalisation. It was not then, and is not now, his.

I hope new editions, and I believe they will, be called for of his book, which, in their preparation, will give him the opportunity to right himself. And he may be sure that it will dim no star in his professional crown to be just to his contemporaries. He has the lead in a text book now, which I hope he will hold to the end of life.

Z. COLLINS MCELROY.

THE IMPORTANCE OF CINCHO-QUININE AS A REMEDY.— The Supervising General of the Marine Hospital Service has issued a circular letter to the medical officers of that branch of the Treasury in which he calls their attention to the extraordinary increase in the market price of sulphate of quinia, and at the same time alludes to the success attending the employment of the other alkaloids of the bark.

In the year 1866 the Madras Goverment appointed a Medical Commission to test the respective efficacy in the treatment of fevers of quinine, quinidine, cinchonine, and cinchonidine, and the remedial value of these four alkaloids as deduced from their experiments is shown by the following statement:

Quinidine,	ratio of failure per 1000 cases,	6
Cinchonidine,	" " " " " "	10
Quinine,	" " " " " "	7
Cinchonine,	" " " " " "	23

Cincho-quinine contains all these alkaloids, and the combination has proved more efficacious than any one alone; and the price of this article being less than one half the present price of sulphate of quinine, the physicians of this country are substituting it for the sulphate; and the medical officers of the Government service should give this subject due consideration in preparing their requisitions for medical supplies.–– *Washington, D. C., Daily Nation, August* 8, 1877.

HAND BOOK FOR HOSPITAL VISITORS.—The little volume before us is No. 13 State Charities' Aid Association (New York). The suggestions contained are offered for the use of those members of local committees, whose duty it is to visit the public hospitals of New York City and State. Women visitors are chiefly addressed, for in many domestic details, matters of cleanliness and order, and the tone of the discipline maintained, matters of nursing, diet, and laundry work, the employment and the general condition of the inmates of an institution, women make the best inspectors. In many European cities women are considered amongst the most efficient public almoners, being not only better able to judge of the requirements of women and children than men officers, but discovering with greater facility female impostors, the most dangerous and troublesome class with which poor law authorities have to deal. In this country there is a growing necessity that women should interest themselves in some of the problems of pauperism, and that on entering public hospitals and other charitable institutions they should know what they ought to look for, and what they have a right as citizens and taxpayers to demand.

In completing the plan proposed, we find most judicious suggestions as to the construction of hospitals—air and water supply—various details of interior management––housekeeping––nursing––and various other directious of important details, which will enable the visitor to systematise plans of observation.

Obituary.

ACADEMY OF MEDICINE.

Cincinnati, August 13th, 1877.

RESOLUTIONS ON THE DEATH OF DR. D. H. JESSUP.

At the regular meeting of the Academy of Medicine, held August 13th, 1877, the following action was taken:

WE, the committee appointed by the Academy of Medicine to draft resolutions on the death of Dr. D. H. Jessup, respectfully report the following:

The subject of this sketch was born at Utica, N. Y., August 16th

1824. He graduated in medicine at the Medical College of Ohio, in 1847, and soon after engaged in the practice of medicine at Rising Sun, Indiana, where, through superior ability and courteous address, he attained an extensive practice, being sought not only in his own neighborhood, but far out in the surrounding districts of Kentucky. In 1865 he was compelled, on account of ill health, to forsake his chosen field of labor, and seek refuge in the less arduous pursuit of medicine in the city of Covington. There, as elsewhere, he immediately identified himself with those true medical men who labor for the advancement of the profession. He readily obtained a large practice, and was twice elected President of the Covington and Newport Medical Society.

Not content with the opportunities there afforded for scientific study, he in 1869 became a member of the Academy of Medicine, and notwithstanding impaired health attended its sessions with exceeding regularity. Appreciating his zeal and worth, his associates elected him President in 1875, a position which he filled in the most commendable manner, being always kind and considerate in administration, yet prompt and correct in decisions.

In every day life he was retiring, yet genial, always benevolent to those in distress; one whom to know, was to admire.

RESOLUTIONS.

Whereas, The Academy of Medicine learns with deep regret of the death of their former President, Dr. J. H. Jessup, on the 1st of August 1877, therefore be it,

Resolved, That in his death the Academy of Medicine has lost one of its most honored members; the medical profession a zealous colaborer; and the community a man of signal worth as a physician, father and friend, one ever active in those pursuits and objects which characterize a true and noble man.

Resolved, That this Academy deeply sympathizes with his bereaved family and friends, and tender to them its most heartfelt condolence.

Resolved, That a copy of this report be transmitted to the family, and furnished to the Medical Journals for publication.

A. E. HEIGHWAY.
L. J. FOGEL. } Committee.
GEO. E. WALTON.

THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

Vol. XX.—OCTOBER, 1877.—No. 10.

Original Communications.

Article 1.—A System of Chemical Testing.—For Medical and General Use.

BY J. B. HOUGH, M. D.,

Professor of Chemistry and Toxicology in The Miami Medical College of Cincinnati.

QUALITATIVE ANALYSIS.

[For specimen page of *Notes and Reactions* see Appendix].

The following process is designed as an introduction to the subject in its wider application. There are cases in which this or even a far more elaborate course will be deficient. In using this course it will be found necessary to refer continually by memory or otherwise to the foregoing *Deportments*, upon which it is based and of which it is merely a classified resume.

The apparatus and reagents are the same as those heretofore used.

[The following course of study is recommended: Select first about 30 simple salts, dissolved in water. They should be no stonger than is necessary to give a decided reaction. Each solution will require two analyses; one for base another for acid. These will furnish several week's work.—For the next course take about 10 solutions, part of which contain three bases and one or more acids, and the remainder three acids with one or more bases. Let the third course consist of simple dry salts insoluble in water. About 10 in number.—Fourth, metallic alloys of several metals.—Fifth, single salts and mixtures insoluble in water or acids.—Sixth, very complex mixtures of various grades of difficulty; and so on advancing by judicious selection to the higher departments of qualitative work. By this means much vexation and loss of time are avoided, while the student learns to have a deserved confidence in what can be done with ease and certainty when properly managed.]

Suppose now you have a specimen for analysis. You proceed as follows:

269. Note whether the substance is *solid*, *liquid* or *gaseous*.
Solids are to be examined according to - - 270.
Liquids as in - - - - - - - - 281.
Gases " - - - - - - - - 337.

270. After making the preliminary dry tests as in 271—272—273 and 274 and noting the indications derived therefrom, proceed to make a solution according to - - - - - - 275.

271. Heat a grain or two of the substance in a **glass tube open at both ends** (a broken test-tube), and held obliquely; beginning with a gentle heat and gradually raising the temperature to redness, in the flame of an alcohol lamp or Bunsen burner. Any of the following changes are noted as *indications* of the bodies named:

Odorous gases indicate As—Sb—S—Se—F—NH_3.
A white sublimate indicates As—Sb—Te—NH_3.
Metallic subliminate.—As—Hg.
Fused subliminate.—S—Se.
Becoming reddish indicates Fe.
Becoming black.—C—Cu—Co.
Whatever the result may be, test according to

272. Heat a grain or less in a **dry glass tube closed at one end** (made of hard infusible glass, and about 3 in. long), and look for the following results and indications:

Condensed moisture neutral to test-paper.—H_2O.

Alkaline moisture.—NH_3.

Yellow sublimate.—S.

Volatilized metals.—As—Sb—Hg—Cd.

Volatilized oxides.—As_2O_3—As_2O_5—Sb_2O_3.

Volatilized acids.—H_2S—HNO_3—CO_2—HCy—H_2Se.

Volatilized salts of Hg—NH_3.

Black color. (Separation of **carbon**). *Organic* compounds.

Whatever the result, proceed to

273. Warm gently in a test-tube with **strong** H_2SO_4.

Effervescence indicates CO_2.

Odor of burning sulphur.—H_2SO_3—$H_2S_2O_3$.

Odor of boiled or putrid eggs.—H_2S.

Violet colored vapor—HI.

Red-brown vapor—HBr.

White, acid fumes.—HCl.

Fumes that corrode the glass.—HF.

Peculiar smell of HCy—CN.

Blackening.—*Organic* matter.

Explosions.—Some **chlorate.**

Whatever the result, proceed according to

274. Scoop a small cavity in a piece of good compact **charcoal,** place in it a grain or two of the body and direct upon it the inner **blowpipe flame,** cautiously so as not to blow it away. Observe that

Crystals containing **water decrepitate.**—NaCl + aq).

Nitrates, chlorates and highly oxydized bodies generally **deflagrate.**

Alkalies and some earthy salts **fuse into the charcoal.**

Oxides, carbonates, sulphates and **phosphates** of the **alkaline earths** are infusible and **phosphorescent.**

The following bodies **color the Bp flame** :

Compounds of	Na	*Yellow.*
“ “	K	*Violet.*
“ “	Ca	*Reddish.*
“ “	Li—Sr	*Crimson.*
“ “	Cu—Sb	*Green.*
“ “	Ba	*Yellowish-green.*

Compounds of **Pb**—**Zn** and **Bi** form *yellow incrustations* on the charcoal. Those of **Zn** are *white when cold.*

Alkali hydrates and **many metals fuse.**

After making a note of the results and reading the next paragraph proceed as in - - - - - 275.

Tests with **borax** and **ammonio-sodic phosphate** are here omitted. They are described, however, at 266, and for those who can afford the time it is best to make them.

275. If the substance be a **metal** or an **alloy** (unless it be one of the alkali metals), this paragraph may be omitted and the next (276) taken. If in doubt proceed, as here directed. To a small portion of the substance, in a test-tube, add 10 or 20 times as much **distilled water** and boil if it do not readily dissolve in the cold. If it wholly or partially dissolves, a larger quantity of **solution** may be made and filtered if necessary. If any undissolved **residue** is left it is to be treated according to - - 276.

And the **solution** according to - - - - - - 285.

276. Test its solubility in **dilute hydrochloric acid,** first cold, then hot if necessary. If it refuse to dissolve try the same acid concentrated; cold and hot. If it wholly or partially dissolve note the changes that occur, and prepare a larger quantity. Filter if necessary and treat any **residue** as directed in - 277.

And treat the **solution** as in - - - - - - 285.

277. Remove any **HCl** that may adhere, by washing with distilled water and treat with **nitric acid,** dilute or strong, cold or hot as may be required. Proceed as with the last acid and treat any **residue** as in - - - - - - - 278.

And the **solution,** if any was obtained, as in - 285.

278. The **residue** (from 277) that has resisted the solvent action of water, **HCl** and HNO_3 is now to be treated with a mixture of about three parts **HCl** to one part HNO_3, boiling if necessary. The acids should not be diluted. Such bodies as resist this solvent are sometimes treated with *sulphuric acid*, in which case, if they dissolve, their solutions may be treated as in 285, but usually it is better to treat such **residues** according to - - - 279.

And any **solution** that the mixed acids ("aqua regia") may have produced, as directed in - - - - - 285.

279. The **residue** from 278, insoluble in any and all the acids

used, must now be dried and powdered and mixed with an equal bulk or more of a flux made of equal parts of **sodic carbonate, potassic carbonate** and **potassic nitrate.** [No base or acid of this flux could have been present in the residue after treatment with aq. reg., therefore when they are afterward found we know that they have been introduced]. The mixture is then **fused** in a **Pt** crucible **at a bright red heat** until the whole mixture has become uniformly liquid. If the fusion is thus complete, the constituents have now changed their combinations so that all the acids have become soluble in water and all the bases soluble in **HCl** or **HNO_3.** Therefore the mass (crucible and all) is boiled with three or four times its bulk of **distilled water** and filtered. A portion of the **solution** is examined for acids according to - - - 315.

And the balance, together with any **residue** undissolved by the water, kept separate for treatment as directed in

280. If it be known that neither **silver** nor **lead** is in the residue, it is best to treat it with **HCl,** otherwise **HNO_3** should be used. Complete solution occurs if the fusion has been perfect. If so, the reserved watery solution is mixed with it and the whole examined for *bases* as in - - - - - - - 286.

But if a **residue** still remain as may have been the case from the presence of very refractory minerals such as **chrome-iron-stone,** reserve the water solution along with the last acid used and **reflux** the residue with about eight times its weight of **borax,** at a bright red heat, adding at last **dry sodic carbonate** as long as effervescence occurs, and yet afterward, while still hot, one part each of **sodic carbonate** and **potash nitrate.** It will now be completely soluble in **HNO_3.** Its acid solution is then mixed with the reserved water and acid solutions, and the **whole examined for bases** as directed in - - - - - 286.

281. If the liquid be a metal (melted at the ordinary temperature) it is probably **mercury,** and may contain **other metals** in solution. Take its **exact specific gravity** and then if necessary treat as directed in - - - - - - - 276.

If the liquid is **not a metal** pass on to

282. For special processes for **analysis of urine,** see - 338. For **other liquids,** after noting the **color, odor, reaction with litmus paper** or other test, and the **specific gravity, evapor-**

ate to dryness a few drops at a gentle heat, (212°F.). Any **residue** that may be left is treated according to - - - - 283. Whether a residue be left or not, the liquid may be a simple one easily determined, or it may be complicated and involve such combinations or mixtures as will defy the skill of the most expert analyst. Thus:

a. It may be simply **water.** Confirm by the **sp. gr., boiling point** and other properties of that body.

b. If the **sp. gr.** is **below 1.000** and the **reaction alkaline,** it may be **ammonia.**—Confirm by 146 to 149.

c. It may be a solution of some of the **volatile acids.** They may be sought as in - - - - - - - 315.

d. It may contain **alcohol** or **ether** or some other well-known body, the nature of which may often be revealed by its **odor, sp. gr., etc.**

e. Or, it may be one of those complicated, difficult or perhaps impossible cases mentioned above. In such cases a "*proximate*" *analysis* or an "*ultimate*" *analysis* may be the only possible course. (See 366; also Watt's Dictionary of Chemistry and the special works of Fresenius, Schorlemmer and others).

283. A little of the residue is heated nearly to redness on **Pt** foil or porcelain. If it **blackens** (that is, chars from liberation of **carbon**) pass to - - - - - - - - 284. If it **does not blacken,** or if prolonged ignition at a red heat leaves a residue, it may be submitted to a "preliminary" examination, if desirable, by the dry tests given at 271—272—273—and 274; but what is generally preferable, some of the original liquid, concentrated by evaporation if necessary, is submitted to analysis by the "*wet process*" as described under - - 285.

284. If the liquid looked pure and gave a clean, pure-looking residue by evaporation at 282, the substance may be one or more of the common **organic acids**; in which case it may be sought according to - - - - - - - - - - - 315. But if the liquid has a viscid or impure appearance, or gives a gummy or impure-loooking residue, it is probably contaminated with **organic matter** of such a nature as to make its analysis in the ordinary "*wet way*" impossible. In such cases, if the object be to determine the **organic matter,** turn to 282 or

pass to - - - - - - - - - - - 366, *b*.
[See also Laboratory Teaching, by C. L. Bloxam, and the general chemical literature of these subjects].

If **inorganic bases or acids** are to be sought, as in cases of **detection of mineral poisons**, etc., proceed as directed under - - - - - - - - - - - - 366.

285. Bases and acids are usually found by different processes. A few acids, however, (those of arsenic, antimony and chromium for example) are found as well or better by the process for bases.

From a *part* of the solution determine the **bases** according to - - - - - - - - - - - - 286.

And from the remainder find the **acids** as under - - 315.

DETECTION OF BASES. (Wet Process).

286. Recall the classification of bases into groups. Test for bases of the first group by adding to a few drops of the solution an *excess* of **hydrochloric acid.** (By an *excess* is meant enough to give the solution a decidedly acid reaction with litmus). If the substance is known to have been dissolved in HCl this reagent may of course be omitted and H_2S added at once as directed in 291. If any base or bases of the first group be present a "**precipitate**" will be formed, that is, a solid will be formed in the liquid mixture. (See 228). In this and all other cases where precipitates are formed, if a single base only is sought it is to be looked for in the precipitate; but if other bases or acids are suspected, they may be in the precipitate or in the filtrate, or in both. In such cases the **filtrate** and the **precipitate** are to be *separated* either by filtering or decanting *after the reagent has been added as long as it continues to make any more precipitate.* By the results and aims here involved, three cases occur:

a If a **precipitate** is produced and only **one base** is sought, proceed as directed in - - - - - - 287.

b. If a **precipitate** is formed and **more than one base** is to be found, pass on to - - - - - 289.

c. If **no precipitate** be formed, read the first paragraph of 289 and then pass to - - - - - - - - 291.

287. To the same small portion in which HCl has caused a precipitate add an **excess of ammonia.** One of four results may occur:

- *a.* If the **precipitate dissolves,** it was probably **silver chloride.**—Confirm by 3 to 10.
- *b.* The **precipitate blackens** if it was **mercurous chloride.**—Confirm by 18 to 21.
- *c.* If the **precipitate remains unchanged,** it may have been **lead chloride.**—Confirm by 11 to 17.
- *d.* **A light precipitate remains,** almost if not quite unchanged, and yet no confirmation can be had for **lead, mercurous** base or **silver.** Such cases are regarded as no precipitate, and after reading the explanation in 288 you return to 286 *c.*

288. **HCl** may liberate **free sulphur** from **sulphides, hyposulphites** or any of the "**polythionates.**" If in doubt as to the nature of the **precipitate,** the question may be decided by filtering it out, drying and burning the filter containing it. The **smell** of **SO_2** produced, will be conclusive.

Besides **S** several other bodies may cause precipitates with **HCl.** They need not create any confusion, as they may be passed over, and will appear in their appropriate places. Some of these bodies are, *Baric salts—Silicic acid—Boric acid—Benzoic acid—Urates—Concentrated chlorides of* **Bi, Sb** and **Sn**—*Fluorides* and *Ferrocyanides.* The presence of **S** or some of these bodies may be reasonably assumed if no **Ag, Pb,** nor **Hg** can be found in the **HCl precipitate.**

289. When **two or more** bases are to found, a systematic process of separation must necessarily be followed, as intimated in 286. The analyst must bear this point in mind and *never* throw away a precipitate or filtrate until he knows whether it contains anything of which he is in search. Proceed by labeling each portion according to the paragraph whence it was derived.

A portion of the original solution must be **completely precipitated** by **HCl** and filtered. Each part must be preserved and treated separately.

The **filtrate** is to be treated as directed in - - 291.

The **precipitate from** 286 *b*, still remaining on the filter is first washed with a *little* **cold water** and the washings added to the former filtrate. It is then treated by passing several **warm waters** through it, allowing each portion to pass completely before the next is added. If the washing is thus continued long enough all the **lead chloride** that may have been present will be dissolved out. Unite the washings, concentrate them by evaporation if very much water has been used, and test them for **lead** by 11 to 17. Any **residue** remaining on the filter is treated as follows:

290. Pass strong **ammonia** several times through it (*avoiding strong light*) and test the **solution** for **silver** by 3 to 10.

If a **residue** is left (dark or black) dissolve it, on the filter, with **nitric acid** and test the solution thus obtained for **mercurous** base by 19 to 21.

291. Here, once for all, the student is reminded of what is said in 286, and instead of giving two different processes, one for simple solutions of one base and another for complex solutions of two or more bases, we give only one process that will, with proper attention, be found sufficient for both kinds of solutions.

To the **filtrate** from 289 (or the original solution if **HCl** has given no pr.), add **excess** of **hydric sulphide** (H_2S) solution.

The reagent *must smell strongly* of the gas and should be so highly charged that when shaken up in the bottle, a pressure is produced within, tending to displace the stopple.

For bases in the **precipitate** pass on to - - - 292.

For bases **not precipitated** pass to - - - - 299.

292. The **pr. from** 291, washed upon the filter (when only a single base or acid is sought, washing is often unnecessary), is treated by passing a small quantity of **yellow ammonic sulphide** several times through it, removing the last portion by passing one or two waters. [If copper is known to be present Na_2S may be used, as **CuS** is in some degree soluble in NH_4S,S^x. According to Prof. S. W. Johnson, if the mixture be previously boiled, **CuS** is *not* dissolved]. Whichever solvent be used, treat the resulting

Filtrate as in - - - - - - - - 293.

Residue as in - - - - - - - - 297.

293. In addition to the well-known bodies **As – Sb—Sn—Au —Pt** some rare metals may be present, for which larger works must be consulted. The separation of the metals forming this section of the second group is not always an easy matter when more than three or four of them are present. If any considerable quantity of **gold** or **platinum** be present the color of the precipitated

sulphides will be much darker than the orange **antimonic sulphide.** Color, however, is not to be depended upon for traces of the noble metals. A good process is to reprecipitate the sulphides by excess of **HCl**, wash, and after saving the greater portion for - - - - - - - - - - 294, make of the remainder a solution free from sulphur by dissolving it in a *small* quantity of aq. regia. ($HNO_3 + 3HCl$). After filtering out the separated **S** this solution is to be tested separately for **Au** and **Pt** by 72 to 75 and 76 to 78.

294. The portion of **reprecipitated sulphides** from 293, is to be digested with strong solution of **ammonic carbonate** and filtered.

Treat **filtrate** by - - - - - - - 295.
" **residue** by - - - - - - - 296.

295. Filt. from 294 will contain **arsenic** if that body was originally present *either as a base or an acid.* It is to be reprecipitated by a small excess of **HCl**, filtered, and redissolved in a small quantity of *aq. regia.* The solution thus formed (or the original one if no other bases of the first three groups are supposed to be present), is tested for **arsenic** by 60 to 71.

296. The **residue** from 294, after washing, is dissolved in a small quantity of **hot, concentrated HCl.** (This should be done on the filter so as to leave the **S** that will separate if **Sb** is present). The acid **solution** thus made may contain **Sb** and **Sn** as **chlorides.** If the former be present the addition of **sufficient water** will precipitate its **oxychloride** (**SbOCl**). Take of the acid solution or else the original one and test in separate portions for both bodies:

For **antimony** by 50 to 59.

For **tin** by 35 to 42.

297. The **residue** from 292 is to be washed and treated (on the filter) with **hot**, moderately strong **nitric acid.** Treat its insoluble **residue**, if any remain, according to - - - 298. Evaporate the **solution in HNO_3** (if that reagent has dissolved anything) to a pasty mass by a gentle heat and treat it with several parts of **water.** If a white **precipitate** be thus formed add **more water** as long as it continues to give more precipitate, and then filter.

Reserve the **filtrate** for *b*.

a. Redissolve the **precipitate** in **HCl** and test the solution (or the original one if admissible) for **bismuth** by 44 to 49.

b. The **aqueous solution** decanted or filtered from the **precipitate** that water may have caused may contain **copper** and **cadmium**; also traces of **lead** and **silver**. Either of these can be detected in presence of the others. Save most of the solution to test for **Cu** and **Cd**. A small part is tested for **Pb** by **dilute H_2SO_4**. If a white **precipitate** is made confirm for **lead** by 11 to 17. Test for **silver** by 3 to 10. To the rest of the solution add **ammonic carbonate**. If a **blue solution** is produced confirm for **copper** by 27 to 34.

If a **white precipitate** is made by the carbonate confirm for **cadmium** by 43.

298. If a **mercuric compound** was originally present its base will be found in the **residue from** 297. (**S** will also be present and perhaps a little **$PbSO_4$**). If **Hg** be present the residue will be **dark-colored**. Dissolve it in aqua regia and test the solution for **mercuric** base by 22 to 26.

299. To the **filtrate from** 291 (or else to the solution in which **H_2S** has caused no precipitate) add **ammonic chloride** (to prevent the precipitation of magnesia until a later stage in the process) and enough **ammonia** to make the solution slightly alkaline. If this produce a **pr.** its appearance may be noted as an indication of what bodies may be present. In other respects it is to be disregarded and to the alkaline solution is added **ammonic sulphide** as the group reagent, adding it in such amount and to such quantity of solution as the complexity of the latter requires, filtering or not as the conditions of the work indicate.

For the **bases remaining in the filtrate** pass on to - 306.

The **precipitate** may contain **Zn—Al—Fe—Mn—Cr—Ni—Co**, any or all. (For other bodies sometimes present, see 78, also larger works).

Proceed by treating the washed **Pr.** on the filter with **hot dilute HCl.** If any residue remain (**NiS—CoS**) it may be dissolved in **hot HNO_3** and added to the **HCl** solution. Add now to this solution a large excess of strong **potash hydrate** and boil for a few minutes.

Zinc and **alumina** if present will be in solution. Filter and treat the **filtrate** according to - - - - - - 305.

The **precipitate**, after washing, is examined in separate portions:

Portion for **iron** - - - - - - - - 300.
" " **manganese** - - - - - - 301.
" " **chromium** - - - - - - - 302.
" " **nickel and cobalt** - - - - - 303.
" " **phosphates, etc.** - - - - - - 304.

300. Dissolve a little of the **pr.** in **HCl**. If iron is present it will be *ferrous* or *ferric* according as **HCl** or **HNO_3** had been used in dissolving the sulphides. Test either this or the original solution for **iron** by 78 to 94.

301. If **iron** has been found, moisten a little of the **pr.** with **nitric acid** and dissolve in a considerable amount of **acetic acid**. Neutralize *exactly* with **sodic carbonate** and boil until no more **pr.** is formed. Filter, and test the filtrate for **manganese** by 95 to 99.

If iron is not present dissolve a little of the **pr.** in **HCl** and test for manganese by 95 to 99.

302. Choose between two processes, *a* and *b*.

a. **Wet process.**—Dissolve a portion of **pr.** from 299 in **HCl** and add a large excess of strong **KHO** without heat. Filter. Boil the filtrate for several minutes. If a **pr.** is produced **by boiling**, separate it, wash, redissolve in **HCl** and test the sol. for **chromium** by 115 to 118.

b. **Mixed process.**—**Fuse** some of the **pr.** with two or more parts of **nitre** and **sodic carbonate**. Dissolve the fused mass in **water** and test the sol. for **chromate** by 118, *a* to 118, *c*.

303. **Another portion from** 299 may be treated with excess of sol. of **ammonic carbonate**. By prolonged treatment, **nickel** and **cobalt** if present will be dissolved. Filter, evaporate to small bulk and add **potash nitrite** and **acetic acid**. A yellow **pr.** formed immediately or after some hours indicates

cobalt. Separate, wash and test part of it by 266 and dissolve the rest in HCl. Test its solution by 105 to 108.

The **filtrate** from which **cobalt** was precipitated by **potash nitrite** (or the solution in which that reagent caused no **pr.**) may contain **nickel.** Test it (or the original solution if other bases are not in the way) by two processes:

a. **Wet process** by 100 to 104.

b. **Dry process.**—Evaporate to dryness and test the residue by 266.

304. The modified and complicated processes sometimes used when **phosphates, borates, oxalates, silicates** or **fluorides** are present, are here omitted. For their study larger works must be used. Even with the fullest possible directions for such complicated cases the beginner will often be sadly bewildered with the multiplicity of relations. No guide or single process can ever be complete for all cases, and in a work of this kind a great deal is often lost by attempting too much. With close attention and a thorough knowledge of *Deportments* the modifications here omitted will in a great measure suggest themselves.

305. The **potash solution** from 299 is to be tested in separate portions for **zinc** and **alumina.**

Portion for **zinc** by 119 to 122.

Portion for **Alumina.**—Add excess of HCl and then a *slight excess* of **ammonia** and heat. If **alumina** be present it will separate as a **light flocculent pr.,** (**aluminic hydrate** = Al_26HO). Confirm by 109 to 114.

306. The **filtrate from** $(NH_4)_2S$, in 299 (or the solution in which that reagent has caused no **pr.**) may contain any or all of the **alkalies** and **alkaline earths.**

Add excess of **ammonia,** some **ammonic chloride** (to hold **Mg** in solution), and then **ammonic carbonate.**

Precipitate - - - - - - - -	307.
Filtrate - - - - - - - - - -	311.

307. **Wash** and dissolve in the smallest possible quantity of **dilute acetic acid** and boil. Add to a small portion of the cooled solution some saturated solution of **calcic sulphate.** One of three results will occur:

a. A **pr. forms at once**, - - - - - - -	308.
b. A **pr.** forms **after** warming for **a few minutes**, -	309.
c. **No pr.** forms even after warming a considerable time,	310.

308. Confirm for **barium** by 130 to 136.

309. Test for **strontium** by 274 and 137 to 140.

310. Test for **calcium** by 123 to 129.

311. To a small portion of the **filt. from** 306 add **sodic phosphate.**

Precipitate - - - - - - - - -	312.
Filtrate - - - - - - - - - -	313.

312. In part of the **filt. from** 311 confirm for **magnesia** by 141 to 145 and then pass to

313. Mix a portion of the original solution, or any succeeding one to which no ammonia has been added, with excess of **potassic hydrate**; apply a moderate **heat.** If the smell of **ammonia** is given off confirm for that compound by 146 to 149 and then pass on to

341. Test for *sodium* by 267—153—154.

Potassium by 257—150—151.

DETECTION OF ACIDS. (Wet process).

315. As a *general rule*, from which there are few exceptions, tests for acids must be made in solutions from which *all bases except alkalies and alkaline earths* have been removed. In the process here given such separations are usually directed where they are necessary. As it is impossible of course for all bases and acids to exist together in the same solution, a useful judgment can always be formed as to the acids that can or can not be present when certain bases have been determined. For example, we need not look for **H_2SO_4** in a solution containing a **barium** salt. Thus the number of acids present in the same solution is seldom very large.

Acids do not afford the same facilities for separation as do bases, and their classification and processes are not nearly so systematic*.

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* The process here adopted differs but little from that laid down in Bowman's Practical Chemistry.

We may begin by adding to a small portion of our solution a little **dilute sulphuric acid.** If **effervescence occurs** pass to - - - - - - - - - - - - 316.

The mixture is then heated *gradually* to boiling while any of the following results are noted :

a. Liberation of **sulphur and odor of burning sulphur** - - - - - - - - 317.

b. **Same odor without liberation of S.** - - - 318.

c. Odor of **boiled** or **putrid** eggs. - - - - 319.

d. Smell of **chlorine** - - - - - - - 320.

c. Peculiar smell of **hydrocyanic acid.** (Must be learned by special observation - - - - - - - 321.

e. Odor of **acetic acid.** (**Pure vinegar.**) - - 322.

f. If none of these results occur, or whether they do or not in case where several acids are sought pass to - - 323.

316. Test for **carbonic acid** by 156 to 157.

317. Test for **hyposulphurous acid** by 169.

318. Test for **sulphurous acid** by 164 to 168.

319. Test for **sulphydric acid** by 158 to 163.

320. Test separately for **Chloric acid** by 172 to 174.
Hypo-chlorous ac. by 170—171.

321. Learn the peculiar odor of **hydrocyanic acid** and then test the solution for it by 235 to 238.

322. Test for **acetic acid** by 180 to 183.

323. Disregard any precipitate but regard all of the three following directions:

a. Mix another portion with about an equal bulk of **strong H_2SO_4.** - - - - - - - - - 324.

b. Make the "**Brown ring test**" for **nitric acid** - 325.

c. Test for acids of the second group by - - - 326.

324. **If chlorine is involved** return to - - - 320. (If **I** or **Br** be evolved disregard them). **If explosions occur** test for **chloric acid** by 172 to 174.

325. **If the ring is produced** (175) determine upon the

presence of **nitric** and **nitrous acids** by their deportments at 175 and 179.

326. Add to some of the original solution enough **ammonia** to make it slightly alkaline. Filter off any precipitate that may form, and add to the filtrate **baric chloride** and excess of **HCl**. (**If silver, lead** or **mercurous base** be present, **baric nitrate** must be used, unless they be first removed).

For the **acids in solution** pass to - - - - 327.

An insoluble **precipitate** is probably **baric sulphate**. Confirm for **sulphuric acid** in the original solution by 184 to 188.

327. To some of the original solution made alkaline by **ammonia** and filtered if necessary, add **calcic chloride**. (**If silver, lead** or **mercurous** base be present this may be omitted, and pass to 330).

Acids precipitated - - - - - - 328.

Not precipitated - - - - - - - 330.

328. Add **ammonic chloride** to the liquid containing the precipitate. Filter if several acids are sought.

For **acids in the** undissolved **precipitate** pass to - 329.

Acids in filtrate.—Test it or the original solution for

Boric acid by 204 to 207.

Tartaric acid by 214 to 218.

Citric acid by 219 to 222.

329. Treat the **precipitate** with excess of **strong acetic acid**.

a. **Acids dissolved:**

Test the solution for **phosphoric acid** by 189 to 195, and **silicic acid** by 202—203.

b. **Acids not dissolved:**

Dissolve in **HCl** and test for **oxalic acid** by 211 to 213, and for **hydrofluoric** acid by 208 to 210.

330. If calcic chloride give **no precipitate** in the cold the solution must be **boiled**.

a. For **acids not precipitated** pass to - - - 331.

b. Test for **citric acid** by 219 to 222.

331. To some of the original solution add **ferric choride.** (First group bases must first be removed).

a. For acids that give **no marked results** pass to - 332.

b. **Blue precipitate.**—Test for **hydroferrocyanic acid** by 243 to 248.

c. **Dark or greenish solution.**—Test for **hydroferricyanhydric acid** by 249 to 253.

d. **Red solution.**—Test for **acetic acid** by 180 to 183 and **sulphocyanic acid** by 239 to 240.

(**HI** or **HBr** if present may also produce a color reaction, but they are disregarded here and found further on).

e. **Black pr. or color.**—Test for **tannic and gallic acids** 256—257.

332. To another portion of the original solution or one of the later filtrates to which no third group acid has been added, made slightly acid with **nitric acid,** add **silver nitrate.** Wash the **precipitate** (which contains all the third group acids present if sufficient silver salt has been used*) by shaking forcibly with distilled water and decanting or filtering, protected from strong light.

Shake the **pr.** with **excess** of **ammonia.**

a. For **acids dissolved** pass to 333.

b. If any or all of the **pr.** be **insoluble** in strong ammonia after long shaking and gently warming (6) test the original solution for **hydriodic acid** by 227 to 231.

c. For unexplained results and complications pass to - 336.

333. To some of the ammoniacal solution add **excess** of **strong nitric acid** and boil.

a. For the **undissolved precipitate** pass to - - 334.

b. If a **cyanide** was present nitric acid has dissolved it. Test the original solution for **hydrocyanic acid** by 235 to 238.

334. The **insoluble precipitate** from 333 *a,* may contain either **hydrochloric** or **hydrobromic acid** or both.

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* The presence of a large amount of chlorides or cyanides may require a large quantity of silver salt before a permanent pr. is produced.

a. If **both are sought** pass to - - - - 335.

b. If only **one of these** is present it is recognized by **226** or **233** and confirmed by its other deportments in some of the original solution, suitably prepared, if necessary, for that purpose.

335. **Chlorides** and **bromides** existing together.

a. **Hydrobromic acid** may be detected **in presence of chlorides by 233.**

b. **Hydrochloric acid in presence of bromides** may be detected by treating their silver precipitates with **dilute ammonia,** in which **AgCl** is more readily soluble than **AgBr.** By repeated treatments, filtrations and precipitations, the **bromide is excluded.** The **chlorine** is then separated by mixing the moist chloride with **zinc filings** for some hours, by which **metallic silver** and soluble **zinc chloride** are formed. In a solution of the latter, **hydrochloric acid** is confirmed by **223** to **226.**

336. The foregoing process, together with that for bases, provides for the finding of about thirty of the more important acids. The lower acids of phosphorus besides several others of less importance are not included. When unexplained results or complications arise it is reasonable to assume that some outside acid or base is the cause. The student may easily find the place where any additional acid should be inserted by the simple expedient of taking one of its known soluble salts and running it through the process to find out where it produces the characteristizing reactions.

337. **Analysis of gases** is one of the more advanced and difficult departments of analytical chemistry. Consult the manuals of Fresenius and others; also for special processes for various gases and mixtures and for references to the special literature of the subject, see Watt's Dictionary of Chemistry.

URINALYSIS.

338. A few additional articles will be convenient, though not indispensable:

3 or 4 glass beakers.
A 6 oz. evaporating dish.
A water-bath.
A small lamp-furnace.
2 or 3 pipettes.
A "urinometer."
A good microscope.

To make a proximate qualitative analysis of normal urine to serve as a preliminary exercise and to show practically its chemical nature, proceed as directed in - - - - 339.

To make a clinical analysis to determine whether a given specimen is normal or pathological, pass to - - - - 352.

339. About ten ounces of urine may be divided into two portions.

Portion A.—About four ounces is treated according to - 340.

Portion B.—About six ounces is treated as directed in 351.

340. Evaporate to a thick paste in a glass or porcelain dish at 212°F. Treat the **residue** with about an ounce of warm **alcohol** (sp. gr. about .825). Filter and treat the

Filtrate by - - - - - - - - 341.

Residue - - - - - - - - - 344.

341. Divide into two portions.

Portion C. - - - - - - - - 342.

Portion D. - - - - - - - - - 343.

342. Mix with about an equal bulk of **pure strong nitric acid.**—The **urea** is mostly precipitated as a crystalline mass of rhombic plates of "**nitrate of urea.**" ($CH_4N_2O \cdot HNO_3$).

343. Mix with an equal volume of **hot, saturated** solution of **oxalic acid.** ($H_2C_2O_4$). After some time the **urea** separates in tabular, prismatic or radiated crystals of "**oxalate of urea.**"

($CH_4N_2O \cdot H_2C_2O_4$). Most complete when cold and concentrated.

344. Destroy the organic matter (mostly urea) that has not been fully removed, by exposure to a **red heat** upon porcelain or platinum until the mass **becomes white.** This will require a strong draught or blast and considerable time. Treat the **fused mass** in two portions.

Small portion by - - - - - - - 349.

The greater portion is boiled with about half an ounce of **distilled water** and filtered.

Filtrate - - - - - - - - - 345.

Residue - - - - - - - - - 350.

345. This **filtrate** contains the **soluble inorganic constituents** of the urine and of the ash of a small portion of its organic matter. To find the **bases** and **acids** in this solution either of two courses may be pursued.

a. The *fullest course*, which however need not be taken in ordinary cases, is a *complete qualitative analysis* according to - - - - - - - - - 282.

b. A *short course*, sufficient for ordinary cases, may be taken by treating the solution in **two parts**, **E** and **F.**

Part E. - - - - - - - - - 346.

Part F. - - - - - - - - - 347.

346. Test for **hydrochloric acid** by - - - 223.

447. Acidify with **HCl** and add **baric chloride.** (Enough to pr. all the H_2SO_4). Filter.

Filtrate - - - - - - - - - 348.

The **precipitate** indicates **sulphuric acid.** Confirm in previous solution by 184 to 188.

348. Test for **phosphoric acid** by 189 to 195.

349. Dissolve in the *smallest quantity* of **dilute HCl,** noting and testing the **carbonic "acid"** (CO_2) evolved from decomposing carbonates.—The solution is then tested for **alkaline earths and alkalies** as under - - - - - 306.

350. The **residue** insoluble in water may contain **phosphates** of the **alkaline earths** and a trace of **silica.** To detect the

latter, boil the residue with **HCl**. Any **gritty, insoluble residue** that may be detected by feeling in the bottom of the test-tube with a glass rod, is assumed to be **silica**. Test the **HCl** solution for **phosphoric acid** by 189 to 195 and pass on to

351. Mix with about half a dram of **HCl** and set aside in a cool place for about twenty-four hours.—Crystals of **uric acid** ($C_5H_4N_4O_3$) will probably deposit upon the top, side and bottom of the vessel. Collect the crystals and add to one portion of them some **pure strong HNO_3** and evaporate to dryness at a gentle heat. When cool add a few drops of **ammonia**. A fine **purple color (murexide** $=$ $C_8H_8N_5O_4$) is produced.

To another portion of the crystals add enough **solution of potash** to dissolve them, and then reprecipitate with excess of **HCl**. The product is partially purified **uric acid**.

Place some of the crude and also some of the purified crystals upon a slide and examine them with a microscope, using a power of 50 to 100 diameters.

Examine also some of the **nitrate** and **oxalate** of **urea** from 342 and 343 and pass on.

A SHORT CLINICAL ANALYSIS OF URINE SUSPECTED TO BE PATHOLOGICAL.

[Make out a full chemical and clinical record of all the points involved].

352. Determine whether the quantity passed in twenty-four hours is considered within normal limits. Whether or not, pass on.

353. Take the **specific gravity**, with a "urinometer" or otherwise. An elevation of temperature of one degree Fahr. decreases the sp. gr. by about .000045]. From a very large number of observations upon the urine of persons who were not conscious of being out of health, I would give as the normal range of sp. gr. from 1.010 to 1.030.

Consider the gravity in relation to the quantity voided, and pass to

354. Test its **reaction** with litmus paper. Pass to

355. Observe the relative proportion of *liquid* to *solid* matter or "**deposit**," and pass to

356. Separate the *solid* from the *liquid* portion by subsidence. A long test-tube is convenient for this purpose. (The "**deposit**" may be removed by closing the top of a pipette or glass tube with the finger until the point has reached the sediment and then removing the finger for an instant. The finger is again applied and the tube with its contents removed).

Examine the clear **liquid** portion as under - - 357.

The **sedimentary portion** as directed in - - - 364.

357. Note its **color** and **transparency**. Normal urine is light to dark amber-colored and transparent. Compare with what its gravity would indicate and pass to

358. To one *very small* drop of urine upon a *clean*, *dry* slip of glass, add as much **pure strong** HNO_3. The mixture must not spread over the glass. If the temperature is about 60°F. and the atmosphere ordinarily dry, **crystallization** will

a. Begin in less than about ten minutes if **urea is in excess.** Pass to - - - - - - - 359.

b. **Will not begin** in less than about ten minutes if the urea is about 2 pr. ct. or under. Compare with the gravity and pass to

359. A portion of clear urine is **boiled.** If a **precipitate** form (which should not occur with normal urine) pass to - 360.

Whether it form or not, pass to - - - - 361.

360. Add **nitric acid** to the pr.

a. If **it dissolves, excess of phosphates** is indicated. Pass to - - - - - - - - - 361.

b. If **it does not dissolve, albumen is present.** Pass to - - - - - - - - - 361.

361. **Trommer's test for sugar.**—Add to a small portion of the clear urine, an equal bulk of **strong solution of potash** (**KHO**) and a **very little** solution of **copper sulphate** ($CuSO_4$). Boil the mixture **quickly** and stop *as soon as a reaction begins.*

A yellowish copper-colored precipitate indicates the presence of **sugar.** Repeat this test until you have become so skilled and certain in its use that .01 pr. ct. of sugar may be detected with certainty. In very weak solutions, concentration by evaporation to a very small bulk becomes necessary. Pass to

362. **Pettenkofer's test for bile.**—In doubtful cases, when the results of this test are uncertain, the urine must be evaporated by **boiling** to small bulk, and decanted or filtered from any precipitate that may have formed. In most cases, however, this precaution is unnecessary. The conditions of the experiment must be closely followed.

In about a dram of the clear urine dissolve a grain or two of **white sugar** and then add **strong sulphuric acid** in portions of a drop or two at a time, shaking after each addition. Continue the addition of acid until a **fine purple color** is produced or until about half a volume of acid has been added. If too much acid and sugar are used a dark color will be produced, which must not be confounded with the *clear* fine purple formed from bile. A *gentle* heat promotes the reaction if other conditions are carefully followed. Pass to

363. If thought necessary a portion of the clear urine may now be submitted to any special tests for the detection of any anomalous conditions not provided for above. Thus, the odor may reveal putrescence or the presence of turpentine for example, while various articles of medicine, etc., may be sought by appropriate tests. Pass to

364. **Boil** a portion of the **sedimentary urine** from 356.

a. **Sediment dissolved.**—Excess of **urates,** (soluble in alkalies). Pass to - - - - - - - - 365.

b. **Sediment not dissolved. — Phosphates,** (soluble in acids). Pass to - - - - - - - - 365.

Organic debris.—Pass to - - - - - - 365.

365. The **sedimentary urine** should now be submitted to careful **microscopic examination,** using for each test a single small drop on a *clean, dry* glass slide, and examining with a good achromatic instrument, using a power of 100 to 500 diameters.

No descriptive outline can here take the place of actual manipulation and observation, nor be of much assistance in that direction.

If the urine is normal the microscope will reveal nothing but **epithelial scales, mucus shreds** and **granules,** with occasional foreign bodies, such as fibres of lint, etc., accidentally present. If the urine was acid, and had stood for several hours, a few crystals of **uric acid** will generally be present as a normal sediment.

If it was acid and high-colored, and indicated **excess of urates,** the sediment will show an **excessive number** of crystals of **uric acid** and crystalline and amorphous **urates** of various forms.

Prismatic, stellate, radiate or pennate crystals of **ammonio-magnesic phosphate** (NH_4MgPO_4), may be expected if the urine was neutral or alkaline, more especially if **excess of phosphates** was found.

Look for the characteristic octohedral crystals of **calcic oxalate** (CaC_2O_4), often present after eating freely of pie-plant.

Calculi of various kinds and sizes may be present; those of **uric acid** are soluble in alkalies, while the **phosphatic** dissolve in **HCl.**

With a power of 200 to 300 examine carefully for **pus-corpuscles, blood-disks, spermatozoa,** *oil-globules,* **fungoid cells, casts and sloughs** from **uriniferous tubuli,** etc.

Finally, collate the evidence obtained from different steps of the analysis. If contradictions or incongruities appear, errors in some part of the work may be inferred. These are to be revised and corrected, so that the work will harmonize throughout.

DETECTION OF POISONS.

366. The general outline here presented has been found very convenient in conducting toxic analyses, and is presented to that large class of medical practitioners who are supposed to hold themselves in readiness for *emergencies* such as the preliminary examination of cases of real or supposed poisoning.

It is not given as a substitute for any of the excellent works upon the subject, but as a guide to their use for those who are not habitually engaged in such work, and as an outline for laboratory instruction. In criminal cases, when life and death hang balanced upon the results of analysis, it would be manifestly unsafe to rely *alone* upon any such condensed outline. In such cases it is necessary to bring to bear a thorough knowledge of the chemical properties and relations of the substances involved.

Supposing the analyst to have accomplished himself in the direction just named; if he expects to allow himself to appear as a witness before a court of justice, it is but justice to himself that from the first receipt of a substance for analysis until its final completion, no other parties should have access to it in any manner whatever. No part of the substance should ever be thrown away or lost, since the processes used for the detection of a poison need not destroy its individual existence. On this account organic poisons should be sought first.

In most cases no more of the sample should be used than seems necessary to secure well-marked reactions.

Confirmations should *in all cases* be made as *fully and completely as possible.* It is evident of course that *all reagents and apparatus used must be absolutely free from every trace of the poisons sought.*

a. For **inorganic poisons** refer to - - - - 367.

b. For **organic poisons** pass to - - - - - 378.

367. If careful scrutiny of the stomach contents or whatever the specimen may be, should detect any undissolved crystals or inorganic masses, they may be submitted to special tests or else dissolved in water or acids and treated according to - 282.

A weighed or measured portion of the mixed material is to be reduced to a fine or pastry condition and mixed with an equal bulk of **dilute hydrochloric acid.** Place the mixture upon a sand or water bath below 270° F, and **when hot** add 5 or 10 grains of **potassic chlorate** every 10 or 15 minutes, supplying the evaporated loss by addition of hot water. Continue the process until the mass has acquired a homogenous condition and a pale straw-color. (If copper be present the color will be more or less blue). Continue the heat until the smell of chlorine has disappeared, and then add enough water to make a bulk about twice the original mass; then, if the solution is not decidedly acid, add enough **HCl** to make it so. It is then passed through a filter.

a. The **filtrate** is treated according to - - - - 368.

b. The **residue** according to - - - - - - 376.

368. Placed in a deep jar, at a temperature of 150 to 160° F., a stream of **hydric sulphide** (H_2S) is kept passing through as long as any precipitate continues to be formed. This may require 24 hours, or even longer. For a part of the time at last the liquid may be allowed to cool while the gas is passing. Filter.

a. Treat the **precipitate** as directed in - - - - 369.

b. The **filtrate** may contain **zinc.** Test it by 119 to 122.

369. The precipitate is to be treated by passing **warm, yellow ammonic sulphide** several times through it, on the filter.

a. Treat the **residue** by - - - - - - - 370.

b. **Filtrate** by - - - - - - - - - 373.

370. Digest (on the filter) with **hot dilute** HNO_3.

a. **Residue,** - - - - - - - - - 371.

b. **Nitric solution,** - - - - - - - 372.

371. Dissolve the **residue** in **hot aqua regia** and test it for **mercury** by 18 to 26.

372. To the **nitric solution** add **dilute sulphuric acid.**

a. If a **pr.** form, test the nitric sol. for **lead** by 11 to 17.

b. Test the **filtrate** for **copper** by 27 to 34.

373. The **solution from** 371 *b* may contain **arsenic, antimony** or **tin.** (Traces of copper may also be present. See 292). Evaporate nearly to dryness on a water-bath, then add a few drops

of **strong nitric acid** and evaporate to dryness. If the residue is not then light-colored add more acid and evaporate again to dryness.

Mix with twice its bulk of **sodic carbonate** and some **sodic nitrate** and **fuse** the mixture in a porcelain crucible, heating very mildly and gradually at first.

After cooling slowly, digest crucible and all in **hot water** until the fused mass is either dissolved er entirely disintegrated. Filter.

a. If **arsenic** was present it will be found in the **filtrate**, which is to be treated as directed in - - - 374.

b. The **residue** may contain **antimony** or **tin**. Treat it as directed in - - - - - - - 377.

374. The **filtrate** from 373 *a*, is acidified with **sulphuric acid** and examined by

The Marsh Test. Having charged the apparatus with zinc and acid, as directed in 67, and given time for the explosive mixture to escape, the jet of gas is inflamed and directed obliquely against a surface of **cold porcelain**. If no "spot" is produced the conditions may be considered satisfactory. Without delay, a portion of the acidified solution from 373, *a* is added to the contents of the apparatus and the flame ignited and brought to bear upon the **porcelain**. If a "spot" be now produced, a considerable number should be procured. If the gas still continues to pass it should then be conducted into a solution of silver nitrate, and after the action has ceased,

a. The **solution** is to be examined for arsenic by 60 to 71.

b. The **spots** are to be tested as directed in - - 375.

c. Any precipitate that may have formed in the silver solution is treated with a little cold dilute nitric acid and washed. The residue, (which may be mostly **metallic antimony**), is to be dissolved in hot aqua regia and the solution (filtered if necessary) tested for antimony by 50 to 59.

375, *a.* **Arsenic spots** dissolve in **sodic hypochlorite**,—do **not dissolve** in **ammonic carbonate**, and turn **brick-red** when treated with **nitric acid** and warmed with **ammonic sulphide**.

b. **Antimony spots** do **not dissolve** in **sodic hypochlo-**

rite,—do dissolve in ammonic carbonate, and give *no reaction* with nitric acid and ammonio-silver nitrate.

376. The residue from 367 *b* may contain silver or lead. Dry it, mix with about an equal bulk of sodic carbonate and fuse it on charcoal. Any metallic grains obtained are to be dissolved in excess of nitric acid and the solution *largely* diluted with hot water. To the hot solution add hydrochloric acid.

a. If a pr. form test the nitric sol. for silver by 3 to 10.

b. The filtrate may be tested for lead by 11 to 17.

377. The residue from 373, *b*, is treated first with excess of hot aqua regia and then with excess of strong solution of ammonic carbonate.

a. Antimony will be dissolved. If the Marsh test (374) indicate its presence confirm by 50 to 59.

b. Tin will remain in the residue as insoluble stannic oxide (SnO_2). It may be reduced upon charcoal with sodic carbonate and the button of metallic tin dissolved in hydrochloric acid and the solution tested by 35 to 42.

378, *a.* Special examinations should first be made for Hydrocyanic acid by - - - - - - - - - 379.

Oxalic acid by - - - - - - - - 380.

b. For general process for the detection of the organic alkalies pass to - - - - - - - 382.

379. Hydrocyanic acid and other cyanides. — As free HCy is an exceedingly unstable and volatile compound, any search for it in mixtures that have been long exposed at ordinary or higher temperatures must almost necessarily give a negative result. Even its most stable salts are decomposed by nearly all the common acids. On this account it should be tested for at the earliest possible moment. Exposure of a few days or even hours may cause its complete dissipation.

Except under very improbable conditions, it is either the free acid or one of its soluble true cyanides to which active symptoms of cyanogen poisoning are to be attributed. In cyanates and sulphocyanates, in which the cyanogen radical (CN) is oxydized or sulphurized (**CNO** or **CNS**), its toxic force is greatly modified, and in those compounds in which six or more of its molecules are united with some inert **polyad metal, as iron (Fe6CN)** and in which **C** and **N** appear to be less intimately united with each other, its toxic force appears to be nil, or rather perhaps cyanogen does not exist in them at all. However, when such bodies as **ferrocyanides** are properly treated with **acids,** they may **evolve cyanogen** as a product of their decomposition, thus:

$$2K_4(Fe6CN) + 3H_2SO_4 + \text{Much water} = \\ \overline{6HCN} + 3K_2SO_4 + K_2Fe(Fe6CN) + \text{Water.}$$

With much less water the result is very different, thus:

$$K_4(Fe6CN) + 6(H_2SO_4 \cdot H_2O) = \\ \overline{6CO} + 2K_2SO_4 + 3(NH_4)_2SO_4 + FeSO_4.$$

Therefore, it is a matter of chemico-legal importance that *before* proceeding to test for **hydrocyanic acid** or other soluble **true cyanides,** the *absence* of inert compounds capable of evolving **cyanogen** shall have been determined. (See 239 to 253).

a. The **odor** of free **HCy** is sufficiently peculiar to reveal the presence of very minute traces.

b. **Test for free HCy.**—A bit of white bibulous paper is moistened with **solution of potash,** suspended in the jar containing the suspected matters, so as not to touch the latter. The jar is then closely covered and kept for half an hour at a temperature of about 100°F. The paper is then removed and touched with a drop of *partially peroxidized* **ferrous sulphate** that has been rendered slightly acid with **hydrochloric acid.** If free **HCy** was present in the mixture a **blue** or **bluish-green spot** is produced. See 235 to 238 and pass on.

c. **Test for cyanides.** — (Cyanides of fixed bases may be present even after prolonged exposure at high temperatures). Apply the same test as under *b*, with the addition of some **dilute sulphuric acid** to set free the **HCy.** If previous tests have shown the presence of **ferrocyanides** or other inert cyanogen compounds, **tartaric acid** must be used in place of sulphuric, as the inert compounds are not decomposed by tartaric acid at the temperature directed.

380. **Test for oxalic acid.**—A weighed or measured portion of the mass is boiled for two or three hours with about one-tenth of its weight of **potassic carbonate,** and filtered when cold. It is then rendered slightly acid with **nitric acid** and again filtered. After then rendering faintly alkaline with **potassic carbonate,** it is a third time filtered and to the clear liquid **lead acetate** is added as long as a precipitate is formed. The **precipitate** is collected upon a filter and washed with **water** containing a small amount of **sulphuric acid.** Any **oxalic acid** that may have been present will be found in the **filtrate** by *neutralizing* with **ammonia** and testing with **silver nitrate.** Confirm by 211 to 213.

382. **Detection of poisonous alkaloids.**—Tests for the alkaloids are reliable only when those bodies are pure or nearly so. A judicious process of separation serves also for their purification.

a. Short process for **Morphia, Atropia, Aconitia, Strychnia and Veratria** - - - - - - - 382.

b. For other and more comprehensive processes, see Attfield's Chemistry, Fresenius' Qualitative Analysis and the special works of Stas, Otto, Wormley, Sonnenschien and other toxicologists.

382. A weighed or measured portion is treated with one or two parts of **water** containing one or two pr. ct., of **sulphuric acid.** After stirring and warming for some minutes the solution is filtered off and evaporated *nearly* to dryness on a water-bath. **Ammonia** is then added in quantity *exactly* sufficient to neutralize but *no more,* and the evaporation completed spontaneously or in a vacuum over sulphuric acid. The **dry residue** is now digested with five or six parts of **warm 90 or 95 pr. ct. alcohol,** filtered and again evaporated to dryness at a low temperature. The **residue** will contain the **alkaloids** as partially purified **sulphates.** In particular cases where no *volatile* alkaloids are to be sought, the residue may be further purified by warming with strong sulphuric acid until the organic impurities become charred. The mixture must be again exactly neutralized with ammonia,

filtered and evaporated to dryness. Whether purification with sulphuric acid be resorted to or not, the alkaloid sulphates are treated by adding first four or five parts **strong ammonic hydrate** and then two or three parts **chloroform.** The mixture is thoroughly shaken, allowed to subside and then the **upper** and **lower strata** separated.

a. The **upper stratum** (ammonic solution) is treated as directed in - - - - - - - - 383.

b. The **lower stratum** (chloroform solution) is examined according to - - - - - - - - 374.

383. The **ammonic stratum** from 382, *a*, poured off or drawn off with a pipette, is evaporated to dryness, moistened with **dilute sulphuric acid** and dissolved in a very little **distilled water.** It may be a solution of **morphine sulphate** ($H_2SO_4 \cdot 2C_{17}H_{19}NO_3$), and respond to the following tests :

a. **Strong nitric acid** produces a **blood-red color,** more or less deep according to the degree of concentration of the morphine solution.

b. Mixed first with **strong sulphuric acid** and **cooled** and then **with nitric** acid, an **intense red color** is formed.

c. Neutral **ferric choride** gives a dark **blue color.**

d. Mixed with **iodic acid** (HIO_3), and **carbon sulphide** (CS_2), a **violet** colored solution of **free iodine** is produced.

384. The chloroform stratum from 382, *b*, may contain **strychnia, veratria, atropia** or **nicotia,** all or either.

a. If only one of these is to be sought pass to - - 385.

b. If all are to be sought pass to - - - - - - 386.

385. Let the chloroform solution evaporate, and test its residue for any given alkaloid as directed below.

386. Evaporate to dryness at ordinary temparature and add to the residue two or three parts of cold, somewhat dilute **solution of potash.** Filter and treat the filtrate without unnecessary delay, as **atropia** is slowly decomposed in fixed alkali solutions.

a. Treat the **filtrate** by - - - - - - - 387.

b. Treat the **residue** by - - - - - - - 388.

387. This solution (filtrate from 386, *a*), may contain **atropia.** [Though Fresenius and some others speak of atropia as scarcely soluble in fixed alkalies, I have not failed to find it in this solution when originally present. It is not to be forgotten, however, that some risk of loss by decomposition is incurred by this method and also that more or less atropia also remains in the residue insoluble in potassic hydrate]. It is to be shaken with about one-fourth part of **chloroform**, and after subsidence, the latter separated and evaporated and the **residue** tested for **atropia.** ($C_{17}H_{23}NO_3$).

a. **Gold chloride** produces a **yellow precipitate,** which gradually becomes **crystalline.**

b. The dry alkaloid mixed with **dry chromic** acid and very gently heated, evolves a **fragrant odor** resembling *hawthorn blossoms* and the *sweet-scented galium.* The same or a similar reaction is produced, but less distinctly, by gradually heating the dry alkaloid with concentrated **sulphuric acid.** In this case the odor resembles that of *orange blossoms* or the *wild plum.*

388. The residue from 386, *b*, may be tested in separate portions:

Portion for **strychnia**	389.
Portion for **veratria**	391.
Portion for **aconitia**	392.

389. If excess of **strong sulphuric acid** and a small crystal of potash bichromate be mixed with a dry residue containing **strychnia,** ($C_{21}H_{22}N_2O_2$), a **transient purple color** will be produced. In applying this characteristic test several conditions must be carefully observed. If the residue contains organic matter that blackens on mixing with the H_2SO_4, it is useless to proceed further until the residue is purified. For this purpose a repetition of the process beginning at 382 will generally suffice. Another point to be observed, particularly when searching for a very small quantity of strychnia, is to make the test in the *smallest possible space.* A good and convenient method is the following:

Mix the residue with a few drops of **chloroform** and then, with a glass rod or pipette, remove the chloroform solution and evaporate it, drop by drop, upon a clean surface of porcelain, placing all the drops successively on the same spot. Upon the circumscribed residue thus formed place a single small drop of **strong sulphuric acid** and beside the mixture place a bit of crystal of **potash bicchromate** no larger than a small pin-head. With the point of a glass rod the crystal is then pushed slowly through the acid mixture. The transient purple streak that marks the course of the crystal when even an excessively minute quantity of strychnia is present shows the great value and delicacy of the test. Pass on to

390. *Physiological tests for strychnia.*—The taste of this alkaloid is so intensely bitter that an amount much too small to manifest any poisonous properties may be easily recognized.

If a frog be placed in a few ounces of water containing .1 gr. or even less of strychnine, it will soon be seized with tetanic convulsions on being touched or disturbed in any way.

[For further tests and the chemical properties of strychnia see U. S. Dispensatory].

391. Tests for **veratria**, ($C_{56}H_{86}N_2O_{15}$).

a. By smelling a dry powdery residue containing veratria, violent sneezing is excited.

b. **Strong H_2SO_4** produces a **red color.**

c. Very strong **HCl**, aided by heat, produces a similar color reaction.

392. Tests for **aconitia**, ($C_{54}H_{40}NO_2$).

a. From solutions of aconite salts, **alkaline hydrates** precipitate the free alkaloid.

b. **Platinic chloride** produces a white precipitate.

c. **Gold choride** gives a yellowish precipitate.

d. Free **iodine** throws down a yellowish-brown **pr.**

e. Strong H_2SO_4 dissolves aconitia to a light-brown solution.

[For the appearances presented by the crystallization of the poisonous alkaloids under the microscope, see Wormley's Microchemistry of Poisons].

(Concluded).

Art. 2.—The Protoxide of Hydrogen Chemically and Medically considered.

A Paper read before the Zanesville Academy of Medicine

By J. S. HALDEMAN, M. D., Zanesville, Ohio.

This is the chemical name of water among us,—of pæceps among the Saxons,—of wasser among the Germans,—of aqua among the Romans,—and of hudor among the Greeks.

And as chemistry is one part of the section assigned me, it would be bnt natural to use this cognomen as the caption for my subject.

Protoxide of hydrogen is an important component of the globe. As a liquid it occupies and covers three-fourths of the earths surface, forming the great waters—the ocean. It exists invisibly in the atmosphere as a vapor. Sometimes it comes to us, from this source visibly, in the solid state, in the form of hail and snow;—at other times assuming the form of clouds or rain. The surface of the earth also is occupied with large masses of this constituent in the character of lakes and rivers. There is scarcely a rock or soil it does not penetrate. The superficial strata especially contain it. We also find it in mineral substances, giving to them much of their weight, varying from two to twelve per centum. In all the three forms in which matter is known to exist, to wit: the gaseous, the liquid, and the solid, this principle is found to be an intimate and important occupier.

This substance is a compound one, composed of the two elements hydrogen and oxygen. Formerly it was regarded but one element. Hydrogen however, is the characteristic element, hence its name water generator, hudor water, and gennao, to generate. Therefore when oxygen combines with hydrogen in a certain proportion an oxide will be the result; and more, this oxide will be perfectly neutral. The two gases combine in certain proportions by weight and volume, but they do so only under fixed conditions. If they are placed in contact indifferently, they simply mix or diffuse with each other. But when, however, two volumes of pure hydrogen are mixed with one volume of pure oxygen, and the mixture is inflamed in a proper apparatus, by the electrical spark, they totally disappear, and the protoxide of hydrogen (water) in equal weight to the gases consumed is formed. This is proving the formation of hydrogen (water), its weight and volume by synthesis. Now, in order to prove its similarity by analysis, it is only necessary to expose the protoxide of hydrogen (water) to an electrolytic action, when you will find it immediately resolved into two volumes of hydrogen, disengaged at the negative pole, or cathode; and one volume of oxygen disengaged at the positive pole, or anode.

In regard to the relative value of these two modes we would say that the analytical is the most generally applied; but in the particular compound of our subject, both methods may be safely employed. However in our humble opinion the synthetical is the most valuable; yet there can be nothing more elegant than the decomposition of this protoxide by voltaic electricity. So we might in a few words record our view by saying that the synthetical is the most valuable, but the analytical is the most beautiful.

As to the composition of the protoxide of hydrogen (water) there now remains no doubt in the minds of chemical scientists, but then as to the exact proportions in which oxygen and hydrogen unite, in forming the compound, has from time to time been a vexed question, and occupied the constant and profound attention of some of the most cultivated minds, and distinguished amateurs of chemical science. In a number of experiments made in Paris, as long ago as in the year 1820, by M. M. Dulong and Berzelius, it was ascertained as a mean result for the composition of this compound by weight 8.009 parts of oxygen to one part of hydrogen, numbers so nearly in proportion of 8 to 1, that the latter have usually been assumed as correct. Very lately a re-investigation was undertaken by M. Dumas with the most scrupulous care, and the result only was to confirm Dulongs and Berzelius' experiments made 57 years ago. The composition of water then, may be considered established for some time to come, if not for aye, so far as its weight is concerned, at 8 parts of oxygen to 1 part of hydrogen; and by measure at 1 volume of oxygen to 2 volumes of hydrogen.

The specific gravity of these two gases has always, relatively, been considered as 1 to 16. It must not be left out of mind these numbers represent the comparative weights of equal volumes of those gases; but as water consists of 1 volume of hydrogen, and a ½ volume of oxygen, it is very plain that the relative weights of these elements in this compound will be as 1 to 8. For this particular accuracy of ratio of the numbers 1 to 8 we are especially indebted to the very profound researches of Dumas and Regnault.

The physical qualities of the protoxide of hydrogen are too well known to the Fellows and the profession in general, and therefore require but a passing notice. When pure it is colorless and transparent, destitute of taste and odor, is a powerful refractor of light, and is an exceedingly bad conductor of electricity of low tension. Its resistance to a current of electricity, therefore, may be taken as a test of the purity of this article.

It attains its greatest density at 40° Fahr. and becomes solid (freezes) at 32° Fahr., and boils under the pressure of the atmosphere at, or near 212° Fahr. It evaporates at all temperatures. One cubic inch at 62° Fahr., weighs 252.45 grs. It is 815 times heavier than air. An imperial gallon of water weighs 70,000 grs. So far as we can observe it is incompressible. Very accurate experiments however, have shown that it does yield to a small extent when the power is very great. The diminution of volume for each atmosphere of pressure is about 51-millionth of the whole.

Pure water is described to be colorless; this is so, and appears so when in apparently small quantities; but when beheld in large masses, as in lakes and oceans, in large and deep rivers, it presents a blue tint, resembling the atmosphere. This blue tint however, as is that of the atmosphere, in large and deep bodies is only apparent and not real; for take and put in a vessel of clear glass, and fill it full of these waters, and it will appear in its real colorless condition,—throw it back again into the ocean and it will instantly assume the appearance of the blue tint. The slightest suspended impurity, such as the admixture of clay, etc., removes and prevents this appearance.

Water never occurs in nature in a state of perfect purity. Even rain, that falls to the ground in the open country without coming in contact with any visible object in its descent, has traces of ammoniacal salts. Rivers and springs are invariably impregnated to a greater or less extent with soluble matter,—saline and organic. Simple filtration through porous stone, or beds of sand, will separate in a great measure, if not wholly, suspended impurities. But, when those impurities become dissolved, distillation or congelation alone can separate them. The substances of the admixture of the various impurities of waters, are almost countless. We will only attempt the specification of a few. The different mineral waters are determined from the geological strata through which they flow. Some of these hold protoxide of iron in solution, and are effervescent from carbonic acid and other gases; others are alkaline; some containing very notable quantities of iodine and bromine, and all are more or less valuable to the medical profession. The temperature of these mineral waters is a noteworthy matter; it is as variable as their constructed chemical nature.

The hydrates are a compound caused by water combining with some other body; and when they are formed, the action generally is very energetic, and much heat is evolved. We have an illustration of this in the common process of the slacking of lime, which is nothing but the production of a hydrate by the water coming in contact with that base. Sometimes the affinity of water and a second body is so great, that the compound formed is not decomposable, no difference what amount of heat may be applied. Such for instance, are the hydrates of soda and potassa, and also of phosphoric acid. The oil of vitriol is a hydrate formed by sulphuric acid, from which the water cannot thus be separated. When water combines with saline bodies in a less intimate manner than those of the afore named substances, they constitute what is denominated, water of crystallization. This is so called from its geometrical form, and may very readily be driven off by the application of heat or other means.

The solvent properties of water far excell those of any other liquid known,—a matter that interests greatly, or should, every medical practitioner. A very large proportion of all the salts are dissolved by it; and the solubility usually increases with the temperature. There are some exceptions to this, for instance, chloride of sodium (common salt), which is soluble at nearly all temperatures. The hydrate of lime and some organic salts dissolve more readily in cold than in hot water. I speak of this, to wit: the solvent character of water, as medically, very important. Ignorance in this particular, in prescriptions, shows itself perhaps more frequently and perniciously than in any thing else. Surgical practice may, once in a while, show the mistake the medical practitioner has made, not intentionally it is true; but then he is blamed and many times brought to grief for the blunder. The surgeon is not any more blame-worthy in manifesting ignorance in his chirurgical manipulations, than the medical prescriber would be in showing his non-knowledge of the solvents he orders to be used in the ministrations of medicines to his patients, whether clinical or merely surgical.

Water dissolves, but in unequal quantities. Hydrogen, oxygen, and atmospheric air are but feebly acted upon, while such as ammoniacal gas and hydrochloric acid are absorbed to an enormous degree. Generally, the colder the water the more gas does it dissolve. However, water heated in a strong vessel above the ordinary boiling point increases its solvent powers very greatly. This is an item that should be particularly noted. I might here refer to some very interesting illustrations by Dr. Turner on this point; one must suffice. He states, that he inclosed in the upper part of a high pressure steam-boiler, worked at 300° Farh, pieces of plate and crown glass. At the end of four months the glass was found completely corroded by the action of the water; and what remained was a white subsidence of silica, entirely destitute of alkali, while stalactites of siliceous matter, above an inch in length, depended from the little wire cage which inclosed the glass. He then goes on, stating that this showed most plainly the changes that may take place by the action of water at a high temperature in the interior of the earth upon felspathic rocks and others. The deposits of the siliceous sinter found in the geysers or hot springs of Iceland are accounted for only upon this hot water solvent theory.

When we, practitioners of medicine, are required to go a distance into the country to ply our profession, to remove some one or other of the numerous maladies humanity is heir to, and are out of the convenient reach of a drug store, we are inclined to use one or other of the four kinds of water so common to be found, to wit: well, spring, river or rain water; and perhaps, I might not be out of the way very far if I said, we are many times inclined to do it, when prescribing in the city, and in plain view of a drug store. Chemically speaking, neither of these waters are a fit solvent for the solution of salts, nor the dilution of other liquids, and for this reason: because they contain alkalies and earthly salts, ranging from 20 to 60 grs. per gallon, derived from the soil through which they percolate. Rain water is mostly contaminated with the dust and debris which fall on roofs, from whence it is usually collected. Now, these waters should not be used as solvents or diluents in their unaltered state. The practitioner mostly, is too much in a hurry,—his time, he thinks, is too precious to wait for its purification, or distillation, and in this way many times is the recovery of the patient impeded, the curative force of the medicine weakened; and what is worse, some one of the organs may become impaired functionly for life, if not having superinduced lesion also. Distilled, or congealed waters then, should be used as solvents and diluents, if at all practicable. Such waters as we have named should first undergo an operation of ebullition, converting them into steam, and the steam again condensed to water in a separate vessel, the fixed earthy and other salts remaining in the vessel in which the water was boiled.

Medicinally, as has been adverted to, the congelation of water is an important matter; and it might not be amiss, nor uninteresting, to spend a moment in giving a few thoughts chemically upon this condition of it. Commonly speaking we say water congeals at 32° Fahr., but then this may vary as much as 11° to 30°.6 Fahr, below the ordinary one 32°. Take and place some water in a glass tube $\frac{1}{4}$ of an inch in diameter, it may be cooled to 23° Fahr. without freezing; but then at this diameter it will freeze at 21° Fahr. And further, place it in a capillary tube, the diameter of which is only the $\frac{1}{200}$ of an inch, and it may be cooled to 3° Fahr., but it will congeal at 1°.4. So then, the smaller the diameter the less tendency to freezing, or the greater the reduction of temperature before arriving to the point of congelation.

We have treated concerning the reduction of the temperature of water below the ordinary degree (32° Fahr.) of congelation as low as that within .6° Fahr. of 0. So we might also state, that in reference to the elevation of its temperature above the ordinary point, 212° Fahr., its ebullition point may ascend as high as 240° Fahr. This is the case when it is deprived of air, or charged with salines. We learn then, that the reduction of temperature below the ordinary point of freezing, in forming ice, depends upon the diminution of the caliber of the vessel that contains it; so the elevation of the temperature of water above the ordinary one for boiling, some 28° Farh., depends upon its being airless, or holding salines in solution.

The congelation of water is also a purifying process, as well as that of ebullition, and here is especially where the medicinal property chemically manifests itself, and should be particularly noted by the profession. Then, by the careful process of freezing water, it may not only be deprived of those gases, for which it has a very strong affinity, and from saline matter, but from the air, which more or less is, mechanically contained in it. Thus, we can have water in its nascent condition, unimpregnated with air or any other extraneity. This form of water, therefore, can be used almost with impunity with our patients, internally and externally. Outside of its topical application, and as a drink, it forms an admirable solvent and diluent. In many northern regions, chloride of sodium, (common salt) is obtained by no other process. In that process the water is separated from the salt.

Art. 3.—Review of Contemporary Modern Pharmacy.

By WILLIAM A. GREENE, M. D., Macon, Ga.

No one denies, at the present day, that in order to arrive at the discovery of *truth*, in the study of any *remedy* or *medicine* whatsoever, it is necessary to *observe*, to *experiment*, and to *reason*. The relative value of these modes of investigation however, are far from being duly understood. In the treatment of diseases and selection of most appropriate remedies, physicians should hold, as of the *first* importance, facts and testimony, derived from trustworthy observation and experience. Notwithstanding the great value of this source of information, the practice of physic must be founded on *knowledge* also. Perfectly clear notions of the processes of digestion, assimilation and excretion are required for the intelligent treatment of the simplest ailment. A solid chemical and physioligical education would do more to apprehend and arrest the shameful adulterations of food and medicine, which are crying evils in our land, than all the laws that can be passed on earth, for no person will commit fraud if he is certain of detection and punishment. Our medical education should be intermixed with more practical chemistry and pharmacy, and I trust the day is near at hand when this much neglected branch of our profession will receive that attention so greatly required, especially, since every day brings to our attention some *new* compound or combination, for the treatment of diseases, to comprehend and test which, requires *observation*, *experiment* and *reason*. In this connection I propose to discuss as briefly as possible a remedy recently introduced. No medicine during the last decade has attracted so much attention perhaps, from medical men of intelligence and position, as *Dialysed Iron.*

Every physician practising medicine in the malarial regions of the South is specially interested in these ferruginous preparations. As might have been expected, the enthusiastic reception given this remedy by the profession has already caused several preparations to be thrown on the market, and consequently great care must be exercised by medical men in ordering it, or they will be disappointed in the effects of a most valuable medicine. Avoid all *so called* preparations of dialysed iron having a *sweet taste*, as generally, they are saccharates of iron or glycerates, and entirely different from dialysed iron properly prepared.

Chemically, it is no *new* thing. It was discovered by Ordoway and by him published and described in Silliman's Journal in 1857, and corroborated by Bechamp in 1859, and again by Phillips, and more recently in 1868 by Jeannel. Their experiments and investigations, supplemented by those of Becquerel, *prove* that dialysed iron *is simply* an oxychloride. Manufacturers will attempt to deceive and allure physicians into prescribing their various preparations, with the idea of its being a "new discovery," a "new chemical." The best rule for *all* medical men is—to be *sure* you are prescribing and using a *genuine* preparation, put up by an honest and skilled chemist and pharmacist.

By this process (dialysis), the most delicate alkaloid principles may be separated from such conplex masses as the contents of the human stomach, for instance, in *medico-legal* examinations; and acid or acid salts, not *chemically* combined, be separated from mixtures containing them. It is this process that separates the component parts of our food and allows assimilation to proceed, and the same process may be observed in the circulation of the sap in plant life. It is well known in the case of wounds in the lungs, no decomposition sets in through the entrance of the air into the pleural cavity. Even where no precaution is taken or antiseptics used, the serous exudations contain no bacteria or vibrios, as in the case when other wounds are exposed. How few ever think *how* this is true, or understand the *reasons*. When we do, we shall find that the lung tissue is a *perfect dialyser*, that it separates all life producing germs, and sends out exhaled air that is optically pure and perfectly free from all extraneous matters common to air that has been passed indiscriminately through the strongest acids and alkalies. Just so the dialyser separates the excess of acid salt from the ferric solution—leaving a pure oxychloride so delicately perfect, that even the action of water precipitates and destroys the combination; so delicately perfect, that when mixed with albumen it forms hæmatosin or the red coloring principle of the blood. Now we all know that the use of ferrugenous preparations does not increase the *number* of red corpuscles, but *they increase the quality*, especially so when *dialysed iron* is used, thus giving a buoyancy and a *youth* to anæmic and enfeebled persons, an invigoration and enriching of the blood, not obtainable by other means than in the preparation under consideration. Concerning its medical uses, it is scarcely necessary to dwell. All physicians know it is indicated in anæmia, chlorosis, dysmenorrhœa etc. Then anæmia and chlorotic subjects, especially among the young females of our *Sunny* South, whose systems cry out from nervous exhaustion for nerve-food, in whom dysmenorrhœa and menorrhagia, from excess of pain and loss of blood, are weakened and enfeebled—to give the blood its original and wonted richness, check the superabundance of these excesses, to allow the patient to regain her strength and to send the red blood tingling through the arteries to bring back the bloom and freshness of her check, and a pristine vigor and tone—is the province and the mission of Dialysed Iron.

Besides the enriching *nerve-food* properties which we have *par excellence* in dialysed iron, it is also characterized by the absence of the great objection so common to all other ferrugenous salts, as producing constipation or diarrhœa—which it does not. The stomachs of the most fastidious females or delicate children never, in my experience, rebel against it. Neither does it *blacken* or otherwise *injure the teeth.* In the diarrhœa (summer complaint) of children, as well as of adults, it is a valuable adjunct in their successful management. Being in effect tonic and slightly astringent, as well antiseptic, exerts these effects upon the walls of the stomach and intestines, strengthening these organs in giving to them normal force and thus exhausting the source of these serous diarrhœas resulting from the relaxation of the fibres by great heat and diluent drink.

Physicians, druggists and the community ought to remember *especially* that Dialysed Iron is an *antidote for poisoning from arsenical preparations*, for when taken into the stomach, gelatinous ferric hydrate is produced. *It is always ready for immediate use* and much better than the sesqui-chloride.

The dose and toleration of Dialysed Iron will depend on the process of its preparation, as is obvious from our discussion of its chemistry already alluded to. The article under consideration I give in *larger doses* than prescribed by its manufacturers. From 10 to 25 drops repeated 4 or 5 times in 24 hours is the usual dose, but may be doubled or trebbled without any evil consequences. My plan is to administer all forms of Iron in the *largest* possible doses. Dialysed iron can be administered in larger quantities than any form I have ever used, without any unpleasant effects whatever, which is of the utmost importance to remember, since it is sometimes of great moment to *ferruginate* the blood with great rapidity, (if you will permit *me* to coin the word which is quite expressive of my meaning.) Best given in wine, coffee or tea—and to children on a lump of sugar, avoiding water.

Finally and lastly, the solution is *permanent.* Messrs Keasbey & Mattison state they have some in the house made nearly three years ago, in a perfect state of preservation. In cold climates it should be protected from *freezing*, and if too thick or gelatinous a *few drops* of distilled water ought to be added.

Drs. S. Weir Mitchell and DaCosta, of Philadelphia, have given this remedy their usual prompt attention, and reported results through the medical journals, to which I would direct the attention of physicians. They speak in high praise of its therapeutic value and commend the use of this preparation to the profession.

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Art. 3.—The Evolution of Life.

Preliminary Course Lecture at the Medical College of Ohio, Sept. 14, 1877,

By JAS. T. WHITTAKER, M. D.

To-day we approach the development of life from the standpoint of comparative anatomy.

The most striking feature in a general survey of the forms of life is their almost infinite diversity. The mind is fairly confused in its attempt to review the vast procession of animated beings in constant defile about us, having nothing more in common, apparently, than motion or growth, reproduction or only assimilation, the grosser phenomena of life. It is comparative anatomy alone that reveals to us the similarity of structure pervading all these forms notwithstanding their great diversity in external appearance. By the study of comparative anatomy we are thus enabled to group the forms of life into species, genera and tribes, to single out elements or types of structure from which all the various forms, are modelled, however much they vary to superficial in-inspection, and to trace the points of resemblance to and divarication from the archetypal plan. Comparative anatomy thus discloses the development and differentiation of all the various organs, from the most simple elementary forms to the most finished and complicated structure, and at the same time reveals the regular order of addition of parts on the road to gradual perfection.

We might select, for example, the complex and composite structure of the organ of vision, which if regarded only in its nearly perfected state, as in man or birds, would seem to have required separate and independent creation in the body in which it is found. But comparative anatomy, in tracing down the structure of the eye, shows us the gradual reduction of parts and brings us at last to the simplest possible arrangement of cells which could serve for visual purpose.

Thus, lowest in the scale of living beings, among the protozoa, we find simply a collection of pigment cells, without any nervous structure whatever, resting upon sensitive protoplasm. In starfishes the pigment cells are depressed and the cavities filled with gelatinous matter to constitute primitive lenses and to effect the first concentration of light. In articulate animals an optic nerve is coated with pigment sometimes arranged in the form of a pupil. In insects are superadded numerous facets, each a distinct lens to converge the rays of light upon the sensitive nerve filaments beneath. In the lowest vertebrate animal, the lancelet, we start with "a little sack of transparent skin, furnished with a nerve and lined with pigment, but destitute of any other apparatus." As we ascend the scale of vertebrata we successively encounter the more or less developed crystalline lens, the vitreous and aqueous bodies, additional lenses, the retina with rods or cones, or both, and finally the accessory apparatus of muscles and lids and lashes, glands for the manufacture of lubricating oil and tears, and tubes to convey away superfluous fluids.

What, is true in this way of organs in the body is true of the whole body, that is of the position it occupies in the animal scale. We may observe in the study of comparative anatomy, the order of succession of different animals in a progressive and uninterrupted chain. In the vertebrate animals, for instance, we see this succession maintained from fishes to amphibia, reptiles, birds and mammals, and from the lower to the higher orders of each class.

Comparative anatomy pays its highest tribute to biology in displaying the general unity of structure in the various forms of life. We owe the first definite exposition of this principle to the distinguished French philosopher, Jean Lamarck. In the earliest years of the present century Lamarck published in Paris his Zoological Philosophy, which was according to its title "an exposition of the natural history of animals showing the diversity of their organization and faculties, the physical causes which maintain them in life, give rise to the movements they may execute and endow them with sentiment and intelligence." Lamarck first propounded the theory of descent in his Natural History of Invertebrated Animals—1815—1822. In this work he maintained that "the systematic divisions of classes, orders, families, genera and species, as well as their designations, are the arbitrary and artificial productions of man. The kinds or species of organisms are of unequal age, developed one after another and show only a relative and temporary persistence. * * * The differences in the conditions of life have a modifying influence on the organization, the general form and the parts of animals, and so has the use and disuse of organs. In the first beginning only the very simplest and lowest animals and plants came into existence; those of a more complex organization only at a later period. The cause of the earth's development and that of its organic inhabitants, was continuous, not interrupted by violent revolutions. Life is purely a physical phenomenon. All the phenomena of life depend on mechanical, physical and chemical causes, which are inherent in the nature of matter itself." Lamarck is therefore justly regarded as the originator of the theory of evolution or the doctrine of descent. His views excited however but little attention at the time of publication. Lamarck had no idea of the struggle for existence entailed by numbers and the survival of the fittest, the key notes in the comprehension of the doctrine of descent; still for having proposed the theory and backed it with proof from comparative anatomy, Lamarck must always be regarded as the pioneer in this great discovery.

Almost about the same time, the doctrine of unity of structure was occupying the attention of the greatest intellect in Germany, Wilhelm Wolfgang von Gœthe. We are all fully familiar with the literary achievements of Gœthe, whom we are accustomed to regard as second only to Shakespeare as a delineator of human feelings and passions, but few of us are aware that he far surpassed Shakespeare in his deeper and more subtile conceptions of the secrets of nature,—the result of higher culture in the physical sciences of his day. In his persistent search after a type of structure in the vegetable world he had already hit upon the leaf—and would have reached the cell no doubt had the microscope been in general use—when he directed his attention to the study of animal life. From his investigation into the structure of insects he was able to announce the ring, a succession of which, from the head to the tail, constitutes the whole body, to be the fundamental principle, modified only to form the various parts of the animal. What the leaf was to the plant, was the ring to the insect. So the vertebra is the starting point, or ground principle for the vertebrate animal. But for a long time the bones of the cranium confused him. They seemed so entirely different from all other osteological forms in the body "as to transport him," as he said when attempting to deduce them from vertebræ, "into a sort of frenzy." A bleached sheep's skull picked up in the Jewish cemetery at Venice during one of these perturbed meanderings, revealed to him as in a flash of inspiration the derivation of the cranium from the vertebral bones. Though this view has since undergone much modification, it was of the highest value in its day in concentrating the attention of the scientific world upon the fundamental principles underlying all animal structure. There remains still another discovery of Gœthe worthy of especial mention in this connection, a genuine discovery, which no later developments may ever confute. It is to Gœthe that we owe the discovery in man of the so-called mid jawbone, the inter-maxillary processes supporting the upper incisor teeth, found constantly in most lower animals in the class of mammals, but up to the time of Gœthe, never detected in man. "The strange case now occurred," wrote Gœthe, "that the distinction between apes and men was made by ascribing an intermaxillary bone to the former and none to the latter; but as this part is mainly remarkable because the upper incisor teeth are set in it, it was inconceivable how man should have the incisor teeth and lack the bone." Gœthe therefore determined that man must possess the inter-maxillary bone and began his search for it in every skull that came in his way. After examining a great number of skulls he found it at last an independent bone. Every skull posesses it, but as age advances it unites with the superior maxilla so closely that even the line of union, like that of the halves of the frontal bones, is completely lost to view. During the whole of fœtal life it may be readily demonstrated in every case, often too in early infancy it remains still isolated except by membranous connection, but only as the greatest rarity may it be observed in later life. Gœthe was so fortunate as to encounter such an unanchylosed specimen and thus could forge another link in the chain of evidence for the theory of descent. "Thus much" said Gœthe in summing up his views on animal life, "thus much, then we have gained, that we may assert without hesitation that all the more perfect organic natures, such as fishes, amphibious animals, birds, mammals, and man at the head of the last, were all formed upon one original type, which only varies more or less in parts, which are none the less permanent, and still daily changes and modifies its form by propagation." No one has so tersely expressed the power of adaptation or adjustment to external circumstances as Gœthe when he said "the animal is formed by circumstances for circumstances."

This same thought had however already found expression in a different tongue in a different part of the civilized world. Erasmus Darwin, the grandfather of the author still living, whose name is now known everywhere, had arrived at the same conclusions without any knowledge of the labors of Gœthe or Lamarck. The doctrine of descent pervaded the air, one might say, on observing its almost simultaneous enunciation in Germany, England and France. Erasmus Darwin published his Zoonomia in 1795, already recognizing at this early period the changing structure of animal life under changing external conditions.

Such is in brief the early history of the filiation theory in its relation to comparative anatomy. When we come now to observe for ourselves the anatomical resemblance between man and the lower animals, we are struck with amazement that their relationship was not noticed long before. The whole structure of the skeleton is glaringly similar among all the vertebrate animals. Confining ourselves to the highest types, we observe such close resemblance between the bones of man and anthropoid apes as to require intimate knowledge of comparative anatomy to declare which is which. The same remark might be made of all the internal organs. The difference between the brain of man and apes is much less, said Vulpian, than between that of apes and the quadrumana just below them. We find indeed less difference in bodily structure and mental faculties between higher and lower apes than between higher and lower species or races of man. The refinements of chemistry and spectroscopy have not been able to differentiate the blood of man from that of lower animals. The microscope refuses to note a distinguishing point between the blood corpuscles of man and the dog. Finer evidence even than this, the same medicines, and the same diseases produce the same effects. Post-mortem sections reveal to us the same lesions of structure in apoplexies, phthises, hepatic troubles, brain affections etc., common to all the higher forms of life. "Many kinds of monkeys," Mr. Darwin relates, "have a strong taste for tea, coffee and spirituous liquors; they will also, as I have myself seen, smoke tobacco with pleasure." The same author quotes from Brehm the assertion, that the natives of northeastern Africa catch the wild baboons by exposing vessels with strong beer, by which they are made drunk. They suffer also the same scourges for these pleasant vices, for monkeykind endure "*katzenjammer*" on the next morning in common with mankind. But Brehm tells the story of an American monkey who after getting drunk on brandy, would never touch it again, and thus was wiser than many men. The taste, nerves and the whole nervous system therefore is the same in the monkey as in man.

Perhaps no part of the body will furnish a more satisfactory demonstration of the unity of structure, notwithstanding the difference of external form, than the termination of the upper extremity, the hand in man or its homologue in lower animals. If we compare in this way the hand of man with that of the gorilla and orang, with the forepaw of the dog, the flipper of the seal and dolphin, the wing of the bat, the shovel foot of the mole and the forefoot of the duck-bill, we shall find them to be composed of exactly the same bones, arranged in exactly the same order, with exactly the same connections. Indeed, the hand of man, the highest of mammals more closely resembles the fore extremity of the duck-bill, the lowest of mammals, than any of the intervening types. As with the hand, so it is with every other member or organ in the body, the similarity of fundamental structure betrays the kinship, the inheritance from the common ancestral type.

But, comparative anatomy only sheds its full illumination over the field of biology when its light is turned upon every stage and phase of life. Hitherto it is only adult or mature forms that have been thought worthy of any consideration. In quite recent years undiscovered treasure has been disclosed in embryonic life," a phase of existence almost wholly ignored, or at least studied only by the privileged few. What makes comparative embryology especially profitable in the study of the development of forms of life is the fact that changes of structure occur in the embryo with such very great rapidity. The transformations of maturer types, which geological ages required to effect under the slow agencies of natural selection, are run through in the fœtus in a few weeks or months. Thus we may observe at different stages of fœtal life phases of development and evolution, for whose recognition in maturer forms we must appeal to the still faulty records of the primæval world. It is in this respect of its perfection too, that the evidence furnished by embryology is so much superior to that of paleontology. And for this evidence it may be claimed with equal truth that it has not been "tampered with by the hand of man."

Although the main facts in our present knowledge of embryology had been divulged as long as a century and and a half ago by the eminent German naturalist, Caspar Friedrich Wolff, and although the full history of the embryonic development of animals had been exhaustively studied by Pander and Bär within the first quarter of this century, yet it was not until the present decade, our own day, as it were, that we have become familiar, through the labors of Ernst Häckel, of Jena, with the developmental phenomena of fœtal life, and their significance in comparative anatomy. Häckel conceived the happy idea of placing accurate representations of the fœtus of different animals, including man, in parallel columns, that their resemblance, one might almost say, identity of form and structure should be apparent at a glance. No one may look upon these representations of the fœtus of man, the dog, the chicken and the tortoise, with an unprejudiced eye, and fail to be convinced of their unity of structure. The general conformation, the position of the upper and lower extremities are the same in every fœtus; the five vesicles of the brain are alike present in each; the organs of the senses and the viscera are similarly located and disposed; and each has a caudal termination projecting between the lower extremities.

Perhaps the most striking feature common to every fœtus is the row of branchial clefts on the under and lateral surface of the neck. The human fœtus presents these fissures as distinctly as every other. But it is only in the fish that these clefts persist to become developed into the gill arches supporting the leaves formed by the ramifying pulmonary vessels, "the fishes ears," properly, its lungs. The gill arches of the human and most other vertebrate fœtus are subsequently absorbed in the formation of the jaw and organ of hearing but their existence at an early period of embryo life is incomprehensible in any other light than that of construction upon the same fundamental plan. At a still earlier period in the life of the human fœtus the arteries run in arches to these branchial clefts and some time after the superfluous arches have shriveled away the branchial clefts still remain as landmarks of their former place. The arch of the aorta, and the arches of the subclavian arteries, are the last relics of the vascular arches of earlier date.

In the human fœtus, as in that of all vertebrate animals, the heart is at first only a dilatation of the aorta, a simple, spindleshaped, pulsätile vessel without septa or valves. The human fœtus has also in common with the rest a pair of Wolffian bodies, in lieu of kidneys, and its excreta like the rest are voided through a cloacum. The convolutions of the brain of the human fœtus at the seventh month nearly exactly correspond to those of the adult baboon. Mr. Huxley makes the remark, that it is only "quite in the latter stages of development that the young human being presents marked differences from the young ape, while the latter departs as much from the dog in its developments as man does. Startling as this last assertion may appear to be, it is demonstrably true."

Embryology reveals to us the significance of organs and structures like the Wolffian body and ductus venosus, or urachus, etc., and at the same time reconciles otherwise discordant features in comparative anatomy. The development and formation of the lower extremity may serve as an example. The similarity of structure of the upper extremity among all vertebrate animals has already been mentioned. It is easy to recognize the same bones, in the same order, arrangement and connection, etc. But in the lower extremity this harmony is apparently not preserved. Thus, in the leg of the bird we may observe the femur, below it the tibia, but in place of the tarsus and metatarsus, there is only a single bone to which the phalanges are attached. Here is a gross dissimilarity which strongly militates against the unity of structure. If we turn, however, to the development of the bird in the egg, the dissimilarity is dissipated at once. For we find in the fœtal bird first the femur, then the tibia, below it two bones to constitute the tarsus, and below, these two short, thick bones, and parallel with each other are three or four long, slender metatarsal bones to which are appended the phalanges. The upper tarsal bone subsequently coalesces with the femur, the lower with the tibia, the metatarsal coalesce with each other to form one, and thus is the leg as well as the wing of the bird shown to be constructed from the same fundamental form. "In short, the history of development," as Oscar Schmidt observes, "which describes the gradual formation of the organism, is at every step a beacon to comparative anatomy."

Comparative anatomy, again, furnishes a lucid interpretation of the significance of those obscure structures in the body known as the rudimentary organs. As animals became subjected to different external conditions in the varying history of the earth, new organs originated from time to time, or what was most frequent, simple structures became more and more perfected until entirely different varieties had been formed. These peculiarities of structure were of course continually transmitted by heredity. But as the surrounding conditions continued to change, the adjustment or adaptation to these conditions necessary to secure the existence and propagation of the species would lead to the gradual sacrifice or reduction of organs, or parts, until at last they would be present in the body, if present at all, in atrophied or merely rudimentary form. Such rudiments or traces of structures, which continue to be highly developed among lower animals, everywhere abound in the body of man. Indeed, no system of organs in the body of man is free from structures thus reduced by disuse, and like examples are encountered throughout the animal and vegetable kingdom.

The wings of animals which have lost the power of flight are examples of rudimentary organs. In the ostrich, the emeu and cassowary, the legs have gradually become enormously developed, because flight was unneccessary on account of the absence of beasts of prey, consequently the wings have become gradually reduced by disuse.

The atrophied lung of serpents and lizards and the aborted ovary of birds are also examples of rudimentary organs. The slender length of the body of the snake leaving no room for the pair of lungs to which it is entitled, the one undergoes atrophy and the other compensates for its loss by its elongation. So the right ovary is aborted in birds as a superfluous encumbrance in weight. Teeth which never cut through to appear, as those in the embryo of the whale and ox, eyes which do not see, as those in moles and underground mice, cave beetles and crabs, etc., the hind leg bones of whales and boas, which never develop, are additional examples of rudimentary organs.

When we come to the body of man, we encounter, as has been said, rudimentary structures in every system of organs. Perhaps the most striking example in the bony skeleton is the coccyx, the rudimentary tail. The individual bones of the coccyx are each but traces of the whole vertebræ as they are composed of the defective central bone, without any of the characteristic processes. Occasional monstrosities exhibit the coccyx of unusual length. A distinct rudimentary structure is sometimes found at the lower extremity of the humerus. It is a small hook-like process of bone projecting downwards towards the inner condyle, with which it is sometimes connected by a band of fibrous ligament. It corresponds to the supra-condyloid foramen of feline animals, transmitting the brachial artery and often the median nerve and protecting them from compression during the contraction of muscles in seizing and holding prey. This rudimentary process of bone, though present in only about one per ct., of recent skeletons is much more commonly met in ancient specimens; thus Dupont found thirty per cent. of humeri perforated in the caves of the valley of the Lesse, belonging to the Reindeer period.

The muscular system is peculiarly rich in rudimentary structures. Remnants of the panniculus carnosus, the great surface muscle of the horse, are met in the platysma myoides, the surface muscle of the neck and in fasciculi in the axillæ and near the scapulæ, as also in the superficial muscles of the scalp so markedly developed still in some people. The extrinsic muscles of the ear are typical rudimentary structures. These muscles are highly developed among wild animals and give the external ear its quick motion in different directions to catch the faintest sounds. As the animals became domesticated and the danger lessened, the muscles gradually atrophied. Many dogs and rabbits, the latter the most timid of all animals, have thus in security lost the power to 'prick up' the ears, which have become in time long and loose appendages. Though careful dissection will reveal traces of these muscles in man, their power is lost except in rare cases. The intrinsic muscles of the ear have become more rudimentary still, and the ability to move parts of the auricle upon each other is entirely lost. The rudimentary muscles about the coccyx, the relics of the powerful muscles of the tail in the lower animals, are worthy of mention in concluding the examples from the muscular system.

The digestive system furnishes two notable rudimentary structures. One is the wisdom tooth. On account of the softer character of the food in civilized life, less mastication is required, consequently the length of the jaws is being reduced and room is scarcely afforded for all the last molar teeth. The very last is the last to appear and the first to fall. It has now but two fangs, whereas in ancient skeletons it possesses three, the number normal to molar teeth. It is the most caducous of all teeth and is slowly becoming rudimentary. The absence and not the presence therefore of the last molar tooth will have to be regarded as the sign of 'wisdom'. The other example from the digestive system is the vermiform appendix. The preparation of the food has become such a science as to limit the period of digestion in the body. It might indeed be said that the food is largely digested by the cuisine before its ingestion into the body. Consequently much of the capacity of the alimentary canal has become superfluous. The head of the large intestine, which forms almost an additional stomach in the gramnivora, and is three times the length of the whole body in the marsupial koala, is very much reduced in the carnivora, whose food contains but little indigestible matter and is greatly reduced in the omnivora, as in man. The vermiform appendix is the shrivelled remnant of the great cœcal receptaculum of the lower animals. In the orang-outang it is still a long convoluted tube, but in man it is reduced to the size of a quill three or four inches in length, mostly blocked with mucus. It is often entirely absent.

From the nervous system the most striking rudimentary organ is the filum terminale of the spinal cord, the continuation downwards of the envelops of the cord to the extremity of the coccyx, the relic of the prolonged cord of the lower mammals.

The short hairs over the whole surface of the body and the lanugo or wool of the fœtus over the whole surface, except the palms of the hands and soles of the feet, where it is absent in most of the lower animals, are clearly rudiments of the universal hairy coat of these animals. Occasionally a 'reversion' is encountered in the birth of an Esau with a hairy coat.

The eye and the ear each possess a rudimentary structure of curious interest. At the nasal angle of each eye is a small, semilunar fold of mucous membrane, the plica semilunaris, which is clearly a rudiment of the nictitating membrane, the third or inner eye-lid in mammals, birds and reptiles. In these animals the nictitating membrane is furnished with a muscle to secure its extension across the entire globe of the eye, in protection of the retina from too great a light. Sufficient protection is afforded in man by the more highly developed lashes, lids and iris, and the nictitating membrane has become reduced to an insignificant fragment.

At a point about at the junction of the upper and middle third of the helix of the external ear there may be commonly seen a small blunt point projecting towards the antihelix. Mr. Darwin had his attention directed to this projection by a celebrated English sculptor, and he does not hesitate to interpret it as the 'point of the ear' turned in, the vestige of formerly pointed ears in the primal races of man. "In many monkeys," he says, "which do not stand as high in the order as baboons and some species of macacus, the upper portion of the ear is slightly pointed and the margin is not at all folded inwards; but if the margin were to be thus folded, a slight point would necessarily project inward and probably a little outward." Whether this point be so regarded or not, it is pretty generally accepted that the whole external ear, the auricle, having become an immobile shell, hence useless, should be considered as a true rudimentary structure. When all its involutions are filled with wax so as to make its internal aspect a plane surface, or when it is entirely removed, as by accident or operation, the sense of hearing is in no way impaired.

The explanations offered to account for these rudimentary structures in man on any other theory than that of inheritance from a common type and reduction by disuse, are as irrational and ridiculous as those to account for the existence of fossils, and serve simply to show the embarrassment and distress which their presence has occasioned. It was claimed for instance, that they were furnished to animals having no use for them to sustain the general plan of creation, or for the sake of symmetry, just as doctors in the army and navy are made to wear small and useless swords to be in keeping with the officers of the line. But the endowment of the highest animals in the scale with organs which are not only useless but sometimes absolutely injurious, (deaths have occurred from impaction of the vermiform appendix with fruit-seeds and stones) would not seem to be in keeping with a very high design or order of creation. This explanation, therefore, is sufficiently ridiculous, but another offered by an eminent physiologist reaches the very climax of absurdity. It is claimed for these rudimentary organs that they serve to excrete matter that is useless or injurious to the system!

In truth, there is absolutely no scientific explanation for these rudimentary structures other than that of inheritance from a common ancestral form and gradual suppression by disuse, because of subjection to conditions, in which they are no longer of avail.

No testimony is more convincing of man's place in nature than that so speakingly furnished by these rudimentary structures. For as Mr. Darwin has eloquently expressed it, by them we see that man with all his noble qualities, with sympathy that feels for the most abject, with benevolence which extends not only to his fellow-man, but to the humblest living thing on earth, with an imagination that outrivals and mocks for expression his marvelous gift of speech, with a God-like intellect which has penetrated to the structure and movements of the heavenly bodies — man with all these exalted powers—still bears indelible in every organ of his frame the stamp of his lowly birth.

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Art. 5.—Variola.—Reply to Strictures of Dr. Haldeman.

By CHAS. C. HILDRETH, M. D., Zanesville, O. Sept. 1, 1877.

In the July number of the LANCET AND OBSERVER, I find an article by Dr. Haldeman, of Zanesville, O., in which I am represented as entertaining some very ridiculous ideas about the treatment of small-pox. If we are only permitted to arrange the premises to please ourselves, to place our opponents in positions they never intended to maintain, we will have no difficulty in demolishing them by argument and authority. We first set up our man of straw, and then we valiantly knock him down. After all the debates and discussions on small-pox, recently had in the Zanesville Academy of Medicine, I must confess myself much surprised, to find this paper of my friend Haldeman in print.

If he seeks notoriety I trust he will find it. If he thinks it a "burning shame", that such a vast amount of originality and extended research amomg the antiquated authors, should be lost to the profession, I agree with him perfectly. If he believes *this* the easiest method of introducing to the medical world that grand discovery, which we will call the "Haldeman method of aborting Small-pox," I shall do my very best to assist him.—Immediately after the reading of this remarkable paper in the Academy (I quote from the record), Dr. Hildreth said that he was sorry his friend Haldeman did not seem to understand his plan of treatment. That he did not advocate the warm bath in the treatment of *all* *cases* of small-pox, but that he had derived benefit from it in the incipient stage of the disease, when there was great debility, or a tendency in the disease to expend its force upon some of the internal organs and in those cases, in which the eruption failed to come out at the proper time. In treating small-pox, Dr. Hildreth said he would endeavor to keep his patient in as comfortable a condition as possible, and would treat symptoms as they arose, whether by stimulants, antiphlogistics, tonics, etc., He expressed great faith in the value of external applications to the skin (such as a mixture of carbolic acid, glycerine, and sweet oil) in modifying the disease, and adding to the comfort of the patient. He said, *he would never dream of treating all cases of small-pox by stimulants*, and that in combatting *this idea*, Dr. Haldeman, throughout his whole paper, had been fighting a windmill of his own erection, etc, etc. The above is almost a verbatim transcript from the record of the Secretary. Now, my honest straight-forward friend, after having me report the treatment of all my cases of small-pox during the late epidemic, and after listening to the reading of my paper on small-pox, in which no such doctrine was advocated, how could you make the effort, at this late day, to convince my medical brethren that I was simple enough to treat all cases of small-pox precisely alike; and that, (above all others,) by the heated method, blankets and whisky? My christian friend how could you? Again I must deny any admission, on my part, that your treatment of the colored family was "orthodox twenty-five years ago". I have no recollection of any such confession, and notwithstanding your quotation marks, believe myself unintentionally, yet wrongly reported.

I have treated small-pox occasionally for the last forty-four years, and have never seen the time during that period, when any sensible man could rely on anything but vaccination to prevent small-pox. This has been the only "orthodox method" with the whole profession, since *inoculation* was forbidden by law; and I certainly never had any confidence in any other method, and never expect to have until something more reliable than vaccination is discovered. In regard to the opinion which I am supposed to entertain, "that no essential change can be made in the disease by medication," I have only to say, that I do not believe there is an eruptive disease in the whole catalogue, from erythema to elephantiasis, which can not be favourably impressed by medication, both before, and after the eruptive stage. But what excuse is this, for neglecting the only preventive of any real, practical value; vaccination, when we have small-pox in the house? I wish it distinctly understood that the above "side issues," have nothing to do with the main question in dispute between Dr. Haldeman and myself.

Now this "little unpleasantness" arose in this way: In the discussion on small-pox, Dr. Haldeman reported some cases which occurred in his practice in a colored family. Small-pox was brought into the house, and several members of the family were not protected. As they had been exposed for two or three days before he saw them, he concluded that he would not be justified in vaccinating the family for fear (as he stated) that vaccina and variola might both appear in the system at once, and thus aggravate the case. He thought the best and safest protection he could give the family, was to prepare them for the ordeal, as subjects for inoculation were prepared in the olden time. The result, he says, was satisfactory, none took the disease. In commenting on this extraordinary course, I had something to say of the value of vaccination in such an emergency, and of the utter worthlessness of all other measures in comparison. Among other things, I said, that any physician in this enlightened age, who would neglect to vaccinate immediately any unprotected person in a house into which a case of small-pox had been brought, was guilty of a plain neglect of duty, and that such neglect was censurable. Dr. Haldeman still contends that he did perfectly right in relying on other measures for protection. Now, *this* is the only matter in dispute between us; and but for the word *censurable*, used by me, his paper never would have been written. Since the days of inoculation, if there is one thing admitted in the whole medical world, it is the fact, that vaccination is the only preventive of small-pox yet discovered, of any real, practical value. This is so universally conceded, that vaccination is now made compulsory by States, and Governments, in armies and navies; compulsory in schools, in life insurance companies, etc. That vaccination has saved more lives, and has added more to the average duration of human life, than any single measure yet discovered, can not be controverted. Dr. H. contends that he did perfectly right in not vaccinating his colored family, simply because by accident they escaped with their lives. This case proves nothing. Suppose the "Haldeman method" should be followed by every physician in a large city, during an epidemic of small-pox; how long would it take to stamp out the disease? It would be stamped out about the time that no more unprotected material could be found for it to attack, and not before.

In saying that Dr. Haldeman was censurable for his neglect to vaccinate, with small-pox in the house, I am but expressing the general sentiment of the profession. I am now prepared to go further, and say, that any physician regularly employed, who, with a case of small-pox in the house, willfully and designedly neglects to vaccinate the other members of the family, (but relies upon other measures for protection), if such family suffer by death or otherwise in consequence of such neglect, then, I maintain, that said physician can be held liable at law for damages. In a recent work on medical jurisprudence, entitled the "Law of Negligence" page 623, it is clearly stated, that when a physician is in charge of a case, and regularly employed, he is liable for any negligence, whether of omission, or of commission, which may produce injury to his patient. He is bound, in every case, to apply such diligence and skill as good physicians (of his school of practice) under similar circumstances are accustomed to apply. (The word "diligence" in this connection, means, assiduous attention, care or caution.) Suppose deformity, or death, should be charged, and proven to be the clear result of neglect to vaccinate the family when most urgently demanded, what chance would a physician have before a jury. In such a case, the best men in the profession would be compelled to testify, that the most valuable preventive measure known to science had been neglected, from which the plaintiff had suffered damage; and damages would most assuredly be assessed. Again, I must be permitted to differ most decidedly with my amiable friend on two or three other points. He stated on the first page of his article, that in the case of his colored family, "the circumstances were extraordinary," and that as they had been exposed to small-pox for *two or three days* he thought it best not to vaccinate them for fear of introducing another disease, "so that instead of bearing up under variola alone, they would be required, as best they could, to endure both variola and vaccina." Now, if the gentleman had said, they would be required to endure one and the same disease, under two separate names, he would have been much nearer the truth, for vaccina is nothing but small-pox modified by passing through the system of the cow. It has been repeatedly demonstrated that cattle will take small-pox by contagion alone from the bedding and clothing of small-pox patients, as well as by inoculation of small-pox virus; and that this very bovine virus, (as it is now called) after one or two "removes" in healthy children, is perfect in its character as a preventive of small-pox; simply because *it is small-pox made mild*, or modified, and nothing else. Instead of aggravating his cases by vaccination, if variola was already in the system, he would have accomplished a result directly opposite. He would have modified the violence of the disease by vaccination, even up to the day the eruption appeared. Let us see what Wilson has to say on this subject; I quote Second American Edition page 108: "Vaccination has been observed to possess the power of modifying variola, even when an attack of the latter has been already commenced. Some remarkable cases are on record, in which the good effects of this remedy were apparent. The practice recommends itself by its extreme simplicity. Eichhorn, who was the projector of this plan, inserted the vaccine lymph by forty or fifty incisions, immediately that the symptoms of small-pox became apparent." Now this I call good practice, as well as good, common sense; for a mild form of the same disease, if introduced in time, cannot fail to modify the more virulent form. This has been repeatedly demonstrated by actual experiment. Dr. Haldeman's excuse, that it would not be safe to vaccinate after "two or three days exposure," is then simply ridiculous. During our late epidemic of small-pox, I had several cases in illustration of the absurdity of this kind of doctrine.

Two young men broke out with small-pox, in separate houses, but in each of which were large families of children. The mothers of the young men volunteered to isolate themselves from the rest of the family, and nurse them. The nurses were both old women, who had never had small-pox, and had not been vaccinated for thirty or forty years. Of course my first duty was to vaccinate every one exposed, or likely to be exposed. This was done at once, with "bovine virus," *fresh from the cow.* Unfortunately, our stock of humanised virus was at that time exhausted. The vaccination failed to take. It was repeated daily with the same virus for a week, and with no effect. Getting seriously alarmed for the safety of the nurses and their families, I took lymph directly from the arm of a child in the sixth day after vaccination with humanised virus. This did not fail to take in a single puncture, and at once, but the nurses had been shut up in a room with small-pox *for eight or nine days*, before I was perfectly sure vaccination had taken. This vaccination was perfect in all respects, the crusts dropping on the sixteenth day, showing they were not protected, and making it almost certain that they would both have taken small-pox except for the vaccination. How does this little practical lesson correspond with the doctor's notion that it is not best to vaccinate *after two or three days exposure*, for fear we introduce two diseases into the system instead of one? If the reader will pardon a short digression here from my subject, I will beg leave to enter my protest against the use of pure "bovine virus" in any case in which it is very important that vaccination should take immediately. If no time can be lost in protecting the subject exposed, never trust the "bovine virus." It has been demonstrated both by early and late experimenters, that the bovine virus is often very slow, and very uncertain in "taking," and often very tedious in its progress and violent in its results. Says Wilson, page 139: "When we attempt to inoculate man with virus directly from the cow, great difficulty is encountered. There would seem to exist an indisposition in the assimilation of virus, derived from an animal of a different order; but after this lymph has been assimilated (or humanized), all difficulty is at an end."

This is probably one of nature's laws, which we may perhaps trace through all diseases common to the lower animals and man. We see it illustrated in the protracted incubative of the virus of hydrophobia in man, as compared with the same stage in the canine race, etc. "On the second day after vaccination with bovine virus (says Wilson), there is unusual redness around the puncture, which declines on the two following days, and becomes concentrated at the point where the papula arises. The elevation of the papula commences *on any one of the days between the sixth and the tenth*. The vesicle contains fluid until the *sixteenth or eighteenth day*, and the crust remains adherent until the *end of the fourth or fifth week*. When the vesicle is ruptured in unfavorable constitutions, irritable, sloughing sores are sometimes formed, etc. 'The vesicles produced by primary lymph are very variable in appearance,' but admit of remarkable improvement by transmission through a series of well-selected subjects. By this process, most of the defects, and some of the evils, connected with the use of primary lymph may be dissipated, the lymph rendered milder, and more suited to general purposes.' '*Recurrence* to primary lymph from the cow, appears to me the only unobjectionable method of correcting the deterioration which has arisen from neglecting the precepts of Jenner." As it has never been proven that bovine virus "protects" longer than humanised, and as the bovine is often very slow and uncertain in taking, and often excessively severe in its results, I have the conviction that humanised virus, two or three times removed from the cow, is decidedly the safest and best for general use. In a desperate case, where valuable lives are exposed, and time is very precious, I would select a healthy child with a humanized vesicle between the fifth and eighth day, from which to vaccinate; and I should certainly expect a positive result from every insertion of virus skillfully made. But to return to our subject. I promised my clerico-medical friend, that I would do my very best to introduce his original method of aborting small-pox to the profession. Now I am sorry to say my friend is entirely too modest, and has neglected to give us in print the full details of his method. He has told us, you know, that ordinarily he has faith in vaccination, but after two or three days exposure, it is too late to vaccinate. Then, the best and safest protection would be an "antiphlogistic course," both as regards food and medicine. If my memory serves me, he said in the academy, "that after the proper attention to cleanliness, ventilation, etc., he put his colored family on a diet of bread and milk, and mush and milk; gave them regular doses of molasses and brimstone, and occasionally a saline purgative and they all escaped the disease. Now, I have only one suggestion to make to my friend, in regard to his very valuable method, and that is, to substitute "fire" for "treacle" in the prescription, I think he will find it more efficient, and as he has become perfectly familiar (in another profession) with the use of "fire and brimstone" among hardened sinners, I have great faith in his skillful management of the remedy. With this slight change in the original prescription, I cordially commend the "Haldeman method of abating small-pox" to my professional brethren.

Art. 6.—A Case of Coxo-femoral Exsection.

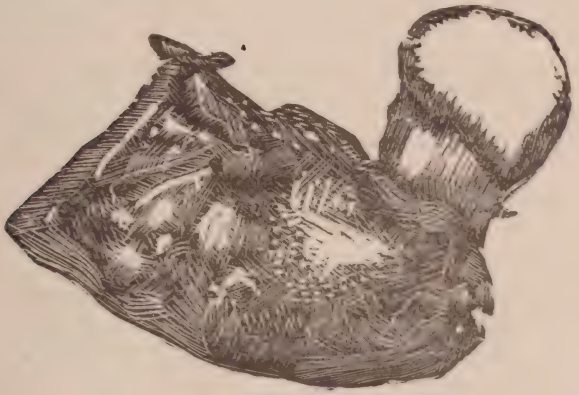
By J. K. BIGLOW, M. D., Indianapolis, Ind.,
Late Surgeon of the 8th Indiana Regiment of Volunteers.

Theodore W. Pease, private, Co. H, 19 Regt. Ind. Vol., age 26, was wounded at the battle of Gettysburg, July the 1st, 1863, by a conical leaden bullet, which entered on the anterior aspect of the right thigh, three inches below the middle of Poupart's ligament, and passing backwards and outward lodged just behind the trochanter major, fracturing the femur and passing through the trochanter major in its course.

The ball was extracted through an incision made July 4th, 1863; cold application was made to the parts, and opium administered to allay the pain, which was very severe. July 9th he was put under the influence of ether and nearly three inches of bone extracted in fragments from the incision on the outside of the thigh. Extension was made by strips of adhesive plaster applied to the leg and fastened to the foot of the bed, and a counter extension by a band around the chest under both arms and fastened to the head board, producing so much pain and discomfort to the patient that it was deemed best to remove it at the end of twenty-four hours.

Smith's anterior splint was applied July 20th, and the cold water dressing continued. The patient states the thigh was much swollen and painful, the discharge of pus was profuse and of a healthy quality. His general health was bad. He had no evacuation of the bowels from the first to the eighth of July, and not again until the fourteenth, when he took a teaspoonful of a solution of sulphate of magnesia, which moved his bowels in a few hours, and was followed by diarrhœa, which continued three months, though checked occasionally, for a few days, by opium. About the middle of October the bone was partially united and the discharge of pus diminished in quantity. Nov. 3d, a large deep abscess was opened about the middle of the thigh, its posterior and external surface containing a large quantity of pus; as described by the patient, "it ran all over the bed, and on the floor;" it still continued to discharge. The pain in the thigh, which had been severe for several weeks, now nearly ceased, his general health improved. On Nov. 9th, 1863, bony union being firm, the splint was removed. When admitted to the U. S. A. General Hospital, York, Pa., Nov. 14, 1863 the limb was three inches shorter, and curved at the seat of fracture. The wounds of entrance and exit were healed, the thigh swollen, and discharges from the old abscess. The patient's condition steadily improved for a period of two months, he gained in strength and flesh, the thigh was much reduced in size, the discharge nearly ceased, was able to sit up in bed with his back supported, with but little pain. Cold applications omitted on Jan. 12, 1864, he was seized with a chill followed by fever and headache, and the formation of a deep-seated abscess, which was opened on the anterior surface of the thigh on the 16th of January. The remainder of January and February small abscesses formed in different parts of the thigh, and the wounds of entrance and exit opened and closed several times. Feb. 29th the muscles of the neck and jaw became stiff, he was unable to open his mouth more than one half, the pulse was one-hundred with fever, the thigh was red, tender, and much swollen, although the discharge of pus was profuse from several openings. This condition continued four days and was met by opium, grs. ij, camphor, grs. iij, every two hours. On the fourth day the stiffness of the neck and jaw had passed off, and was succeeded by almost constant hiccough, for twenty-four hours, when it ceased; diarrhœa occurred and continued until the 8th; during the last eight days the condition of the the thigh rapidly improved, the pain had now subsided, the swelling greatly reduced, and the discharge nearly ceased. The patient debilitated, with little or no appetite, yet he felt comfortable and better than he had for some time. Under the use of quinine and iron, his appetite and strength were restored, and the case prospered well until the 6th of April, when the parts surrounding the wound of entrance became painful, sensitive and swollen. On the following day the wound opened and soon extended about three inches in depth and one inch in diameter. In a few days granulation commenced and is now nearly closed. On the 14th an abscess was opened on the posterior surface of the lower third, and on the 22d, another about five inches higher. They are still both discharging. On the 8th of November, 1871, after being brought thoroughly under chloroform, an incision, commencing at the middle of the dorsum of the right ilium, carried down the outer aspect of femur to within two inches of the knee-joint—dissecting away the soft tissues, the femur was exposed and divided with "Hays" saw five inches below the trochanter major. The shaft of femur presented numerous sharp spicula on all its aspects, pointing into the muscular structure of the thigh, which gave much trouble, and required great care in its enucleation attended with considerable hemorrhage. The bone was now disarticulated, removed, and found to be made up of necrosed involucrum, which had incorporated the numerous spiculæ, also a large portion of the leaden ball was found in the spiculæ in the trochanter. The wound healed kindly and in twenty-eight days was entirely closed. In three months a cartilaginous union had taken place—and now Sept., 1877, with the assistance of a 6 inch "lift," on the right shoe, walks well and attends to the ordinary duties of a deputy U. S. Marshal.

The accompanying wood-cut is from a photograph taken:



Bi-Monthly Abstract.

Current Contributions to Obstetrics, Gynecology and Diseases of Women.

Condensed by EDWARD B. STEVENS, M. D., Lebanon, O.

PUERPERAL SEPTICÆMIA.—Dr. J. W. Underhill reports two cases to the Cincinnati Academy of Medicine, and bases upon them an extended discussion of the distinctions which are found in the somewhat vague term of "puerperal fever"—especially his views of the distinction between septicæmia and pyæmia. The full consideration of this inquiry is an extended one, but we will try to give a summary of the author's points.

"Septicæmia includes solely that class of disorders, resulting from absorption from the primary lesion *before* pus is formed, that which supervenes *subsequently* to the formation of pus constitutes pyæmia."

"The essential nature of the disease is the same, whether we study the puerperal or any other form of the affection, and the pathology is essentially the same whether it be surgical or puerperal;" that is to say septicæmia is in either case a traumatic disease.

In septicæmia, the attack comes on early, often within a few hours after the production of the lesion in which the disease may have its origin.

It runs a rapid course—terminates fatally sometimes within twenty-four hours, ushered in with a chill; and the chill not repeated. Cerebral disturbances and impaired intelligence. Fever violent and persistent—temperature 104°-107°—usually without remission. No muscular debility. No abscesses. No pain. If dyspnœa—it occurs late. Respiration not frequent. Skin red. The disease developed before pus has formed.

Pyæmia presents an opposite history in almost all its marked features.

Dr. Underhill "would reject from pure septicæmia every case in which secondary abscesses are demonstrated, such being properly cases of pyæmia although I admit that many of these are complicated by septicæmia. So too he would exclude milk fever, which Thomas and others seem to regard as a true septicæmia of a mild form. If these distinctions are clearly made out, then we are to regard puerperal fever as a general term including septicæmia as one of its varieties.

The purpose of the author is simply to draw so sharp a distinction between septicæmia and pyæmia that the two terms, as well as that of puerperal fever shall not be used interchangeably, but definitely and with reference to specific features.

In regard to the question of contagion — while noticing other views, Dr. Underhill states that his own experience to be otherwise. Personally he has never known the disease to be transmitted by the attending accoucher. But he adds with proper caution—it is not safe to deny the possibility of a disease being contagious merely because it is contrary to his own experience.

Dr. Underhill, quotes Dr. Barnes—"septicæmia generally begins and ends in the patient attacked." Further — "I do not believe that women in the pregnant or parturient state *catch* the disease from each other in the sense that they contract measles, scarlatina, etc., for example. But I do believe that the puerperal or parturient woman may be infected with the disease by *direct* contact of the poison of decomposing animal matter: the hand being the agent most likely to carry the poison."

The question of treatment is not very satisfactory, cases of the virulent type are not affected by remedies, — and the middle grades usually terminate favorably without therapeutical interference. He thinks such disinfectants as carbolic acid cannot be introduced into the system in sufficient quantity to interfere appreciably with the poison. — *Cincinnati Med. News Nov. & Dec.* 1876, *April* 1877.

Dr. W. A. Parish, reports a case to the Philadelphia Obstetrical Society recently, which illustrates the importance of a clearer and more uniform understanding of the use of terms. Dr. Parish, reports his as a case of "puerperal septicæmia pyæmia." The patient had been a recent syphilitic, there was perineal laceration, and superficial anterior laceration. She was comfortable until the fifth day after labor. Chills recurred frequently. In the autopsy abscesses were found in the chest wall and right lung, with purulent effusions in the pleural cavities. The report concludes: "It would seem probable that the lacerations of perineum and of vagina were the starting points of the septic and pyæmic poisoning of the blood, while constitutional syphilis may have borne its part in preventing the system from successfully resisting the inroads of the poisons." — *Transactions Phil. Obstet. Soc. Am. Jour. Obstet. April*, 1877.

THE INFLUENCE ON THE FŒTUS OF MEDICINES, PARTICULARLY NARCOTICS, ADMINISTERED TO THE MOTHER DURING PREGNANCY AND LABOR. — Some time since Dr. J. B. Mattison, of Brooklyn, attended a case of labor with the following circumstances. The patient a primipara, age 25; the health throughout gestation has been good; no headache, no neuralgia, no gastric trouble, no deficient renal secretion, no albumen in the urine up to the very last day, and no anasarca. During labor however, there were several severe convulsions, preceded by severe headache and followed by coma nearly complete. At intervals of one and two hours, three hypodermic injections of morphia were given, in all 1½ grs., coma continued several hours after the birth of the child.—The child was asphyxiated at birth, but restored by artificial respiration, immediately after which it too had a series of (nine) convulsions. It is of course, first an interesting question what caused the convulsions in the mother, and second especially the cause of the convulsions in the infant, was it the effect of acute uræmia in the mother, or was the little one narcotized? A veteran practitioner who saw the babe pronounced it opium narcosis.

Of course, if we decide even the possibility of narcosis, there followed a point of serious importance as to the propriety of administering narcotics in the management of anti-partum convulsions, as indeed the administration of such agents at any time during gestation.

The report of the case, and its suggestions, gave rise to a protracted discussion in the New York Obstet. Society, through the sessions of several weeks.

Dr. Mundé opened the discussion with the relation of a case of a lady he had recently attended in her second confinement, who was addicted to the use of morphine to the extent of 12 to 16 grs., of morphine in the twenty-four hours. The usual doses even were taken during the progress of the labor. There was nothing abnormal in the progress of gestation, or labor, and the child was born apparently unaffected in any respect from the habit of the mother. He then proceeded to give an exhaustive summary of the literature of this question, especially the results of various experiments by German investigators. Reitz injected cinnabar into the blood of a pregnant rabbit, and found particles of red coloring matter of that chemical in the blood of the fœtus. Gusserow was able to detect iodine in the liquor amnii and in the urine of the new-born infant after administering iodide of potash, for about two weeks, to the mother before her delivery. Zweifel, in five case where chloroform had been inhaled during labor, found traces of the agent in the placenta and in the urine of the new-born infant, thus showing that that vapor at least, is rapidly transmitted to the fœtus. The results of various other experiments are given, some quite positive, and others with simply negative results. The inference with some that uterine osmosis is uncertain—with others that it is exceedingly active.

Now it is well known that medicines are given to the mother, with the view of affecting the vigor and health of the offspring—especially is this familiar when the mother is a syphilitic. But this does not explain why it is that a dose large enough to be suitable to the mother, should not injuriously affect the fœtus in the utero. In the case of narcotics, it may be plausibly argued that the child becomes gradually accustomed to the poison—but if so—why was the first dose not injurious? Drs. Fordyce Barker, Peaslee and others followed Dr. Mundé—giving expression to opinions decidedly adverse to the idea of any medicines addressed to the mother, injuriously influencing the fœtus in utero. Although these gentlemen admitted that certain drugs did pass from the mother to the child when administered for a long time.

Other gentlemen, especially Dr. Gillette reported a personal experience where he was confident in several cases the child had been born more or less decidedly narcotized.

The discussion was closed by the President Dr. T. G. Thomas, who was decided and emphatic as to his convictions, in the affirmative. It was not a question of the ninety and nine negative results, but if the drug be discovered in the blood of the fœtus in the hundredth case the question is settled. Not the question of frequency or probability—but merely possibility—whatever happens is possible—and that such passage from maternal to fœtal blood happens is abundantly proven.

Dr. Thomas was also well satisfied that a drug, morphia for example, might and did, not only pass from the mother to the fœtus, but might produce an injurious effect upon the fœtus. As the result of the current discussion he said: "You have now before you in evidence that narcotics sometimes, when administered in large doses to the pregnant woman, affect the fœtus in utero, the following cases:

8 by Dr. Gillette.
2 " " Palling.
1 " " Skene.
4 " " Thomas.
1 " " Mattison.

"The doubts attaching to Skene's and Palling's cases I admit. I cannot admit, so long as I rely upon the evidence of my own senses, and my ability to differentiate narcotism from asphyxia, the slightest doubt as regards my own cases; while in Dr. Mattison's case, I think we have as strong evidence as could be obtained under the circumstances.

"But what are you going to do with Dr. Gillette's cases? He experimented nine times, seven times with morphia and twice with atropia. In all his cases the labors were normal, accomplished in a reasonable time, and without manual or instrumental aid. In every case in which the morphia was used, the child showed opium poisoning more or less profoundly. The respiration was slow, the heart stroke feeble, and the pupil contracted. Dr. Peaslee says contraction of the pupil is often natural to the neonatus. Admitted: but see the effect of atropia—pupil widely dilated, iris scarcely discernible. The second case in which atropia was used was terminated in a half hour after its employment by the forceps.

This extended discussion has brought out a great deal of valuable experience upon the question of the placental osmosis of drugs administered to the pregnant mother. One very interesting case was the instance of a child born to a morphia eating mother, perfectly bright and free from any indication of narcosis at birth but becoming profoundly so, upon being applied to the mother's breast.

While much of the testimony of Drs. Thomas, Gillette and others may be regarded as "positive"—yet we think here is an instance where "negative" testimony is not to be disregarded, especially when we reflect upon its wonderful extent. Still enough "positive" facts have been presented to put practitioners upon their guard—Though perhaps not to reject narcotics even, as proper agents with due precaution. We know that under some circumstances we know that with so simple and common a resource as the vaginal injection of warm water, there is possibility of danger; a serious colic may be produced, or a pelvic peritonitis. Dangerous results may accompany the introduction of the male catheter—or may follow vaccination—or the use of the nasal douche. And yet knowing these possibilities the physician does not abstain from this use—but simply applies to these resources, a reasonable degree of intelligent carefulness.—*Amer. Jour. Obstet. April*, 1877.

PLACENTA RETAINED FOR EIGHTEEN MONTHS.—Dr. Macy, of Cape May, reports a case of placenta retained for over eighteen months.—*Ibid.*

PRECOCIOUS MENSTRUATION.—Dr. Craig, of Hudson reports a case of precocious menstruation in a child of four years of age, who from that age till ten menstruated regularly. At that age menstruation ceased, to return in four years, and after that she continued menstruating naturally. She enjoyed good health during the entire period. In contrast he notices a case of prolonged menstruation in a lady now 73 years of age, who is as regular every month as any young woman.—*Ibid.*

PROPHYLACTIC TREATMENT OF PLACENTA PREVIA.—Prof. T. G. Thomas states that we have by no means reached a point in the treatment of this alarming complication of labor, where we may feel sure that we have at our disposal means to ward off the danger of death from either mother or child with any certainty, while skilful management may accomplish a great deal. In many instances the services of the practitioner are not attainable, and a fatal loss of blood may occur, or the mother from repeated hemorrhages, is apt to come to her labor, sanguinated and exhausted both in mind and body. As the only remedy the induction of of premature delivery recommended after the viability of the child is established. As for the objection that a child who has had less than nine months of intra-uterine existence has not as good a prospect of life, as one that has arrived at full term, it is urged that such would have a brighter prospect when dependent upon pulmonary respiration for the reaction of its blood, than upon a crippled and bleeding placenta. For the mother, the safety would doubtless be greater. Dr. Thomas believes that when premature delivery becomes the recognized and universal practice for placenta previa the statistics of the present day will be replaced by others of a far more satisfactory kind. Eleven cases are adduced in support of this position of living children being delivered—all the mothers with one exception, eventually recovering, while, according to the statistics of Sir James Simpson, based upon the analysis of 339 cases, one-third of the mothers and one-half of the children were supposed to be lost, and Read computed the mortality as one in four and a half mothers, while the large majority of the children were lost. — *Am. Practitioner, March*, 1877, *N. Y. Med. Record, June* 2, 1877.

NITRATE OF SILVER IN PRURITIS OF THE VULVA. — Dr. Charles, *Annales de Gynécologie* speaks most highly of the application of the sold nitrate of silver in the treatment of vulva pruritis. The seat of the itching is oftenest near the clitoris, or in the nymphæ, sometimes at the margin of the anus. It is necessary to cauterize freely, passing the crayon two or three times over the affected surfaces, and even somewhat beyond them. Dr. Charles states that he has found, without a single exception, great relief from the first cauterization, often a complete cure. Sometimes it is necessary to recur to the cauterization a second or third time after some days.—*Amer. Practitioner, April*, 1877.

Correspondence.

Indianapolis, Sept. 10, 1877.

Editors of the Cincinnati Lancet and Observer:

We have a lively time at this point, a hospital war, the homeopathists are making a raid; and as several points of interest have been developed, perhaps a brief history will not be out of place.

When the city council met, in May last, a new hospital board was formed of members of the council and the board of alderman who had not a due appreciation of the claims of regular medicine. The first occasion of a change was found in a fight of both colleges against the incumbent hospital superintendent, who was displaced through such influence upon the ground that fair play had not been given the colleges as to clinics, etc., during the winter; upon the same ground of fair play between the schools of medicine upon petition of the homeopathists, one of their number was placed upon the hospital staff, otherwise composed of regular physicians both within and out of the colleges. At once the County Medical Society was called to take action either to sanction or condemn the idea of the staff accepting the positions offered them by the board. At the first meeting a resolution was passed, expressing the sense of the society to be, that none of its members could accept a position on the staff as long as an irregular was connected with the hospital. Subsequently the staff met and signed a paper, the gist of which was, that it would be contrary to the code of ethics to accept positions on the medical or surgical staff while an irregular physician was officially connected with the hospital, and declining to serve thus or in any capacity as medical men at such hospital unless the irregular was dismissed. A committee was appointed to place this conditional declination before the board. The board subsequently met, and instead of removing the irregular, Dr. Boyd, from his official connection with the hospital, proceeded to form two boards, one of Regular Physicians, and the other of homeopathists, Drs. Boyd, Compton and Runnels—this latter being not only a consulting staff but having the *additional privilege* of a visiting staff. That such was the action will be seen by the following note from Dr. Boyd, as endorsed by the board:

THE HOSPITAL CONTROVERSY SETTLED.

To the Editor of the Journal: AUGUST 22.

In Saturday's Journal you remark that "there are no homeopaths on the staff of the City Hospital. This is official." The truth is, that there are two staffs, one composed of old school physicians and one composed of homeopathic physicians, having equal rights and privileges. The homeopaths, on account of not having a physician of their school in the hospital as it is at present, have the additional privilege of visiting and treating all patients who desire homeopathic treatment. The board has not backed down a particle, but stands on this settlement, and any statements to the contrary are false.

J. T. BOYD.

INDIANAPOLIS, August 18.

The above statement of Dr. Boyd is correct, and the board will stand by it.

T. E. CHANDLER,
A. IZOR,
M. STEINHAUER.

All saw that this settled the question, and that the board listened not to the pleading or threats of the staff or the profession, and all might (unwillingly) have accepted the situation; and rather than either contaminate themselves, or set a bad example, waited with "hands off," and trusted to Providence that the homeopathists should destroy themselves by bad management, or be destroyed by a new hospital board. But the colleges whose fighting brought the curse, were now willing to accept the additional nauseous compound offered them, in consideration of clinics to be held at the hospital this winter without regard to the different colleges. Some, at least, of the staff wished to recede from their action upon the specious plea, that as two staffs were formed, no irregular was upon their's—willing in fact to go in at the back door and consult with the superintendent, while the homeopathic staff entered the front door, with the double right to consult and visit, and also quoting the assertion of the superintendent: "That he would never call the staff of three." Ignoring the fact that their's was a board who should see about such matters, and also ignoring the fact that if members of one staff could lecture before gentlemen at the hospital, the members of the other staff without doubt would have the same privilege, and that they could not be deprived of it—is this a better or a worse position than to have a regular and homeopathic faculty in the same colleges?

A few years ago a physician, superintendent of the dispensary, issued a card upon which was the statement that, "any patient desiring homeopathic treatment at the dispensary would receive such." And this upon the plea that patrons of the homeopathists would supply funds for the use of the dispensary. The physicians connected therewith came very near being discharged from the State Society on account of this card, and would have suffered such fate unless they had retracted, apologized, and promised reform; they were censured, however, by the Society. And yet some gentlemen who censured them and would if possible have discharged them, pretend to think it no breach of the code to attend patients, and to lecture in a hospital where there is a homeopathic staff with more power in fact than they themselves possess. Such is consistency, but the time is not yet. "The mills of the gods grind slowly," etc. The profession will justly ostracize all who deal in such slight-of-hand performances.

The following are the names of the gentlemen composing the staff:

R. N. Todd, W. B. Fletcher, Theopholis Parvin, I. N. Kitchen, J. Comingor, J. F. Thompson, T. M. Stevens, J. K. Bigelow, Isaac C. Walker, J. W. Marsee, E. Hadly, E. S. Elder, L. Henthorne, T. B. Harvey, L. D. Waterman, J. Vanvorhis, S. A. E. Lyons, C. E. Wright.

Let each one see that he has the paschal blood sprinkled, that harm come not. ✻

Reviews and Notices.

Transactions of the American Gynecological Society. Vol. 1. For the year 1876. Boston. Published by H. O. Houghton & Co., Cambridge: The Riverside Press, 1877.

This volume of Gynecological transactions is the first of what promises to be a series of contributions to this department of professional literature. In May, 1876, a number of gentlemen well known as students and practitioners of Gynecological medicine met in the city of New York for the purpose of organizing a national association for the promotion of knowledge in the departments of obstetrics and gynecology. The necessary machinery of such an organization was speedily effected under most favorable auspices. Dr. Fordyce Barker was made first President and he is associated with some of the best known men in our country; all of which augurs well for perpetuity and success. The first annual meeting was held in New York, Sept. 13, 14, 15, 1876, and we now have its transactions complete, together with the papers presented.

The tone of the President's inaugural address is of that high character we might expect from its distinguished author, and its carefully matured expressions are well calculated to give character and direction to the plans and conduct of the future work of the society.

The papers contributed are twenty—besides the President's Address and Dr. Munde's Memoir of Simon. These papers embrace a range of topics and experiences of the most valuable and practical sort and make a fit beginning of so important a work. The secretary has very properly as we think incorporated with the text of the essays, the important portions of the discussion, which followed. In a notice like the present however it would be scarcely possible to give the contents and nature of these papers. But we cannot doubt gynecologists in our own country and abroad will eagerly seek to procure these transactions as they shall appear from year to year. The second annual meeting of the society was held in Boston May 30th to June 1, 1877—and the corresponding volume of Transactions is promised by the coming September. The present volume may be had through Robert Clarke & Co., Cincinnati, for $5, subscriptions forVol. 2 may be forwarded at $4.

An Elementary Treatise on Practical Chemistry and Qualitative Inorganic Analysis. By Frank Clowes, D. S., London. 12 mo., pp. 372. From the Second English Edition. Henry C. Lea, Phila., 1877. For sale by Robt. Clarke & Co., Cin.

The author says in his preface: "It has been my aim throughout to give all necessary directions so fully and simply as to reduce to a minimum the amount of assistance required from a teacher. * * * The directions how to work, and the description of the preparation and use of apparatus, have been given more fully than is usual, since my own experience, confirmed by that of other teachers, convinces me that one of the most serious hindrances to the utility of many of the smaller Text-books on Practical Chemistry is the too great conciseness of the language employed, which frequently renders it unintelligible to the student unless supplemented by copious verbal explanation from the teacher."

In our opinion the author of this work has erred in the opposite extreme by reducing to a minimum or nearly so the amount of thinking necessary on the student's part and of attention to his business on the part of the teacher. American students like Americans as a nation are self-reliant, and like best those authors that teach them to do their own thinking.—Why American publishers should reissue so many foreign publications that are in no respect better than the works of our own authors, instead of encouraging home talent by giving it a deserved market, is a question that deserves the attention of those who study our national interests.—The work is well written by one who shows a practical familiarity with the subjects described. A prominent feature is the collation of differential deportments under the head of "Tables of Differences."

The typographical work bears the publisher's usual marks of excellence. J. B. H.

The Question of rest for Women During Menstruation. By Mary Putnam Jacobi, M. D., Prof. Mat. Medica, in Woman's Medical College, New York. The Boylston Prize Essay, of Harvard University for 1876. Illustrated. New York, G. P. Putnam's Sons. 1877.

The question of how far, or whether at all, women require rest, mental and bodily, during menstruation, is made the turning point just now of several important questions—educational, and social. The author of this essay, which received the Boylston prize for 1876, has evidently entered the discussion *con amore*, and with the purpose of demonstrating the negative of the proposition, and we must acknowledge that the statistics which she has accumulated tend materially to rebut some of our preconceived opinions of the past.

The essay undertakes to dispose of several inquiries, each successively bearing on the general question of this supposed necessity for rest. First and very naturally we have a consideration of the menstrual process; then the influence of various occupations, especially how far these produce menstrual pain or other debility. It is admitted that an important per cent. of the number of females, have a serious degree of disability at the period, but these are accounted for by other than natural causes, as the results of artificial states of society —and various pathological conditions. Indeed it is claimed that the present extent of disturbance at menstruation is due rather to the "slender provision made for the physical education of girls"—than to undue physical endurance at that period.

The essence of the whole careful and very valuable essay, without attempting any synopsis of the several propositions, is afforded in the following quotation. "The fifth question is answered by all that precedes. *There is nothing in the nature of menstruation to imply the necessity, or even the desirability, of rest, for women whose nutrition is really normal.* The habit of periodical rest, in them, might indeed easily become injurious, because in the cessation of nerve muscular activity, the blood properly attracted to the muscles and nerve centres would be diverted from them, and tend towards the pelvis, increasing its hyperemia above the physiological standard." * * * * "The menstrual flow is the least important part of the menstrual process, and arguments for rest drawn from the complexity of the physiological phenomena involved in this, should logically demand rest for women during at least twenty days out of the twenty-eight or thirty. In other words, should consign them to the inactivity of a Turkish harem where indeed anemia, if not dysmenorrhea, is said to be extremely frequent." The whole essay makes a very attractive and readable volume and will add to the already established reputation of the industrious author. For sale by Robt. Clarke & Co. Price $3.

E. B. S.

The Farmer's Veterinary Adviser. A guide to the prevention and treatment of disease in Domestic Animals. By James Law, Professor of Veterinary Science in Cornell University; Fellow of the Royal College of Veterinary Surgeons of Great Britain, Former Professor in the Albert Veterinary College, London; Author of General and Descriptive Anatomy of the Domestic Animals. Second Edition. Ithaca, New York:

It is wholly unnecessary on our part to speak of the value of the horse to the practicing physician; a subject thoroughly understood and appreciated by our readers. And we know many of them will welcome the appearance of a small and concise work such as the one offered them by the distinguished author.

As the title of the work implies, it is designed especially to supply the wants of our granger friends, and the subject matter is consequently freed from technical terms, which makes it none the less valuable even to a doctor. The author practically treats of the various diseases to which the horse is subject, giving special attention to contagious and epizootic diseases, and to parasites. The book is well illustrated and also contains an appendix, of the action and doses of medicines for all domestic animals.

The Specialty of Diseases of Women, by C. E. Wing M. D., Boston, is a calm defence of gynecology as a proper and important specialty in medicine.

On the Nomenclature and Classification of diseases of the skin. This is another effort to simplify this vexed question by Dr. L. D. Bulkley, physician to the skin department of the Demilt Dispensary, New York.

Nurse and Patient, and Camp Cure. By S. Weir Mitchell, M. D. Philadelphia: J. B. Lippincott & Co., 1877. For sale by Robert Clarke & Co.

This little brochure is a reprint from Lippincott's Magazine, and is designed more for popular reading and instruction than for the special benefit of physicians.

The author in his lucid manner portrays the effects of a case of illness in a healthy household, the hours and days of anxious waiting, etc., and gives wholesome instruction as to the special care and attention that should be given to the patient. The second part of the book is devoted to the advantages of a camp life for a few months to the exhausted brain workers of our cities.

Alcohol: As a Food and Medicine. A Paper from the Transactions of the International Medical Congress, at Philadelphia, Sept., 1876. By Ezra M. Hunt, A. M., M. D., New York: National Temperance Society and Publication House, 1877.

This paper is so full as to almost exhaust the subject, though we opine there will yet be much said and written for and against the use of alcohol as a food and as a medicine.

The author from experience and investigation arrives of the following conclusions:

1. "Alcohol is not shown to have a definite food value by any of the usual methods of chemical analysis or physiological investigation.

2. Its use as a medicine is chiefly that of a cardiac stimulant and often admits of substitution.

3. As a medicine it is not well fitted for self-prescription by the laity and the medical profession is not accountable for such administration or for the enormous evils arising therefrom.

4. The purity of alcoholic liquors is in general not as well assured as that of articles used for medicine should be. The various mixtures when used as medicine should have definite and known composition and should not be prescribed promiscuously."

Some General Ideas Concerning Medical Reform. By David Hunt, M. D. Boston: A. Williams & Co.

This is a very interesting little brochure of 50 pages, in which the author gives a brief running sketch of the various medical reformers from the time Paracelsus to the present day. Noting the doctrines they taught, as also the system of education, religion and governments that wrought out such results. In criticising; the methods of instruction pursued in the Medical Colleges of this country, he says:

"The truth that the aim of medical education should be in the greater part to form of some a good observer, and not a well crammed graduate, needs to be emphasized. It is better to fit the student to select from the mass of medical literature, of the day, than to incite him to an acquaintance with it all. To this end teachers should be critical observers; students learn much by imitating their teachers. The pitiful excuse that practice makes such enormous demands upon our American teachers as to leave no time for research is worn threadbare: it gives time for an enormous amount of compilation and translation, why not observation? Did practice hinder a Græfe, a Skoda, a Kiwisch from adding to Medical Science? It is the method which is at fault. Train our students to observe; select tutors from the world, not from a city or a street; let every man in the state or country feel that good work is a sure passport, that nothing else is, and the result of trained observation will nourish the drooping plant that now causes so much solicitude." The author then urges the schools to arrange a series of lectures on Medical History, in which the evolution of medical doctrines should be carefully and critically described: that the relation of the philosophy of medical history to the work of original research be pointed out. There is merit in the proposition. The author goes on to compare our system with that of the various European Governments and closes with a vigorous criticism of the assumed air of superior wisdom exhibited by a part of the profession in Mass., in their criticism of the American Med. Association, and of the representative local society of Boston—the Suffolk.

Civil Malpractice: A Treatise on Surgical Jurisprudence. With Chapters on skill in Diagnosis, in Fractures, and on Negligence. By Milo A. McClelland. New York: Hurd & Houghton. 1877. For sale by Robert Clarke & Co. Price $3.50.

The author of this treatise begins his work by dividing Malpractice into three kinds: 1. "Ethical Malpractice," in which persons claiming to be Medical Men bring suits against physicians or Medical Societies, for alleged insults to their professional dignity. 2. "Civil Malpractice," in which patients bring suits for damages, which they have or think they have sustained through want of skill, or from negligence on the part of their attending physician. 3. "Criminal Malpractice," in which the people or state is made the plaintiff. The body of the work being devoted to the second division of the subject—Civil Malpractice, and includes *legal reports* of nearly all suits for negligence and malpractice, brought in the various courts of the different States. The author has prepared the work with the utmost care, and given both the medical and legal professions the most complete work on this subject that has been published. Any man who has in any manner been connected with a malpractice suit will at once appreciate the value of such a work for reference and justifiable support. We not only commend the book to the profession but will say that no medical or legal library is well furnished without it.

New and Popular Music. Just published by F. W. Helmick, Cincinnati.

Dear Old Homestead. By Miss Anna C. Hilts.
Old Uncle Dan. By Horace Dumars.

History of a Case of Recurring Sarcomatous Tumor of the Orbit in a Child, extirpated for the Third Time and Ultimately Causing the Death of the Patient. By Thos. Hay, M. D , of Philadelphia. Reprinted from the Report of the Fifth International Ophthalmological Congress, held in New York, Sept., 1876. Philadelphia: Lindsay & Blakiston.

This is an exceedingly interesting report of a case of unusual occurrence. The author has added very greatly to the value of his paper by giving a number of fine illustrations of the tumor in its different stages of growth.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. Von. Ziemssen. Vol. xv, Diseases of the Kidney. By Prof. Carl Bartels, of Kiel, and Prof. Wildhelm Ebstein, of Gœthingen. Albert H. Buck, M. D., New York, Editor of American Edition, New York: Wm. Wood & Co.

In looking over the short biographical sketches of the authors of this volume. We observe that in contra-distinction from the authors of previous volumes, the are men of more mature age, Prof. Bartels having completed his 55th year, and Prof. Ebstein his 41st. Both have had the advantage of a long hospital experience.

Two-thirds of the volume under consideration are taken up by Prof. Bartels in discussing the structural diseases of the kidneys and the general symptoms of renal affections, and the diffuse diseases of the kidneys. In noting the functional symptoms, which are proffered by the quantity and quality of the urinary secretion, the author lays down a most important rule for guidance in making an analysis of urine. "That it must be the total urine of twenty-four hours scrupulously collected together," since in no shorter period is it possible to obtain a urine that furnishes anything like a correct sample of the kidneys performances. As well as to determine how much urinary water, how much nitrogenous material, as well as how much albuminous substance are being daily excreted.

"An examination of the urine must include a notice of its quantity, color, general appearance, specific gravity, chemical composition, and the character of its sediment."

In discussing the subject of albuminuria, he regards the combination of albumen with urine as in every case an evidence of pathological conditions. As the overflow (passage) of serum (albumen) from the blood-vessels into the renal tubes of the kidneys will in every instance be proportioned either to an existing abnormal increase of the blood-pressure, or to an altered state of the walls of the vessels; or to a combination of both these causes acting together. Which, however, is not inconsistent with the fact that every disease of the kidney does not give rise to albuminuria. As to the significance of urinary casts or cylinders, the author says: they never take place under perfectly normal conditions, and the appearance of any species of cast, is as a general rule, associated with the excretion of albumen in the urine, their presence is an indication of true renal albuminuria.

The history, etiology, pathology, symptomatology, prognosis, diagnosis and treatment of the various diffuse diseases are treated in a masterly manner; the language of both the author and translator (Reginald Southey, M. D.) are exceptionally clear.

The last third of the volume is devoted to diseases of the kidneys, together with the affections of the pelvis of the kidneys and the ureters. And is by Prof. Ebstein. Under this head is embraced inflammation of the kidney in its various parts and tissues, with termination in supuration; the degenerative processes of the kidneys; tumors; foreign bodies; parasites; anomalies; and diseases of the renal vessels, making the volume a complete work on diseases of the kidneys.

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LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., Editor.
T. M. STEVENS, M. D., Ass't Editor.

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Original Communications.

Art. 1. — Transcendental Medicine. — An Enquiry concencerning the Manner of morbific and remedial Agents independently of Empericism.

By T. L. Wright, M. D., Bellefontaine, O.

I do not use the term transcendental, in its, to many, offensive sense; but, as being the best designation at hand to signify a number of partly defined, partly developed, and of course, partially understood elements or agencies; diverse in character; remote, each from the other in origin; yet, which present a common and united bearing upon the elucidation of the science of morbid activity, as well as of rational therapeutics, or the restorative action of remedies, upon pathological states.

There is a domain of thought, and of legitimate speculation, beneath the boundaries of fancy and of mere theory, and still beyond the strict limits of established and demonstrable facts. It is that region where truth and its surroundings are in embryo; where principles, so to speak, are born; where facts and doctrines growing out of facts are nurtured and tested; and becoming at length, either virile, when they enter into, and augment the quantity, and improve the character of science; or else, proving defective, weak, or false, they fail to live, and presently disappear. The greater part of the plainest and best established facts in the domain of knowledge once occupied this airy, unsatisfactory position; and it is scarely necessary to say, that much of the future advancement in scientific pursuits, must rest upon the establishment of principles drawn from this same unsubstantial and ever changing arcanum of embryonic facts and subtileties.

From such premises positive demonstration will scarcely be expected. Hints, suggestions, inferences and inquiries may abound. These may combine to point to the same identical conclusions; and, to conclusions just and valuable also, notwithstanding they may be incapable of establishing their essential characteristics in all their bearings.

It is not an indication of wisdom to underrate the labors of others who have struggled to advance the knowledge of medicine. Still it is clear that the application of remedies to the cure of diseases is most difficult, and often very unsatisfactory. Brilliant achievements have been made in every department belonging to medical science; but in the perplexing department of therapeutics, there is so much that is yet uncertain, or in dispute, that the physician is painfully conscious of weakness there. After all that he has mastered in his researches; after all of his triumphs it may be, in many of the departments of natural science, yet, when he comes to the supreme test of his skill, when he prepares to put into operation the culminating proof of his proficiency, he cannot help feeling, more frequently and more keenly than is agreeable, that he has reached a "most lame and impotent conclusion."

We do not possess what may be called a Rational Therapeutics. The whole end of medical learning is the successful application of remedies to diseased states. The brightest collateral acquisitions may bring renown and wealth; but with a defective therapeutics, no weight of accomplishment attainable, will relieve the medical man from the odium of partial failure in the most vital pretention of his profession. Mathematics and astronomy are assured, and independent of the opinion or the experience, or the tact of any man. In surgery, in anatomy, in physiology and in chemistry, there is a large degree of certainty. But in the application of remedies to diseases, uncertainties, exceptions, disputes and defeats are interminable; and there is no authorized tribunal to which these imperfections can be referred for adjustment. When the time comes that remedies can be applied to diseased conditions, with a clear perception of the relations that suit between the therapeutical powers of the remedial agents and the pathological forces prevailing, and with a demonstrable knowledge of the fitness of the former, to the nature of the latter, then we will be in possession of a rational therapeutics. The science will be fixed. It will no longer be subjected to the assaults of the ignorant, or the superstitious.

In an enterprise conducted to accomplish a greater degree of precision in prescribing medicines. it is right and necessary, to appropriate the labors and discoveries of each and every scientific inquirer, whose researches, can in any way, aid the undertaking; it matters not whether such persons are physicians or not; or whether their investigations were made in the interest of medicine, or of something very different and remote from medicine.

There seems no doubt, that in the swift advancement of learning during the last few years, a number of obscure points have been made clear, and doctrines have been established, that can be applied with great advantage to the subject now under consideration. That, indeed, the time has come, when therapeutics can be made more rational, and approximate somewhat towards a clearly established, and unquestionable science.

To satisfactorily understand the way in which morbid agents may impress the health, to recognize the channels through which such agents really act, it is proper that certain great and controlling forces should be considered, their natures and powers discussed, and their modifying influences in the production of disease, and in the restoration of health, should be noticed. In order to accomplish this, it will be be necessary to glance at certain great elements of nature, that compel and decide a portion of the vital operations concerned in the origination, growth, and final construction of the human being.

It will be proper also to view man in his relationship with the other animated structures that exist, or have in the past existed on the globe; to notice the physical consanguinity so to speak, of man with the lower animals; and his partial assimilation with those animals, as evinced by certain traits of character, instinctive or emotional, that are sometimes perceived to be common to the human being, and the brute, or reptile.

Furthermore, it will assist in the development of rational principles respecting the questions in hand concerning diseases and their remedies, to consider cursorily, the effects of locality; in fact, of what is generally called HABITAT, upon the constitutional peculiarities of the human race. Again, it will be well to inquire respecting the actual moving source of diseases. As nearly as possible, that portion, or organ of the body, whence the complicated mass, and vast number of symptoms radiate that are morbid in their activity, should be designated. In making this investigation nature is likewise being questioned, as to the proper centre toward which remedies for diseases should, most commonly be directed.

It will be well to remember in the outset, that the human constitution, is, in one sense, the child of the elements of nature, a portion of which are about to be discussed. Man is formed in consonance with their powers and qualities. He represents them. Hence, if there appears any incongruity between them, and a necessity arises for a readjustment of their relations, it does not spring from imperfection of these great natural agents, but it is because offence by man himself, through ignorance or the force of circumstance, against those natural and controlling powers, to which he owes his existence and well being.

The topics claiming attention at present will be confined to,

1st. Magnetism.

2nd. Light.

3d. The differences and peculiarities of the human constitution, as exhibited by different men, and depending upon a more or less close relationship, presumed to exist, between certain persons, and brutes or reptiles.

4th. The changes in the human constitution, associated with variations in the surface of the globe, as shown in the history of the human race in many countries of the world.

5th. The general character of the functions of the brain. While it is the great center of sensation and source of thought, it is also, the great conservative organ that presides over health and disease, and is the fountain of all, or nearly all of the recuperative energies of the system.

SECTION I.

The relations of magnetism to the human constitution, as they bear upon pathology and therapeutics.

The magnetic force is universal, aparently, throughout space. It is exercised at infinite distances, and, in what appears to be, an infinitely quick manner, no matter how remote the source of its operation may be situated. Magnetism is not a force irregular or tumultuous in its own character. "It is not," says Prof. Henry, "a force producing changes in nature, but tends to bring matter in a state of quiescence from which it is disturbed by some other force."

The question to determine is, therefore, what other force or forces are they, which, by disturbing magnetic quiescence, cause the phenomena of nature to become multiform, heterogeneous? The origin and cause of the forces so acting, and their frequency and extent, will claim attention. The more or less regularity observed by them, and the ulterior influences inciting, or compelling a development of their activity, will also become proper subjects of remark. And, finally, the character which impressions so arising may impart to human health will be considered.

It is, altogether, a difficult subject; and one, concerning which more is to be hereafter learned, than has yet been discovered.

Magnetic activity, that is, magnetism in a state of disturbance, involving the idea of activity, also, in the malarial elements subservient to magnetic power, is displayed in various ways, and is divided into distinct groups.

Certain magnetic currents are called terrestrial. One of the phenomena of terrestrial magnetism recorded by Charles Matteuci, is the existence and activity of a current moving from the south toward the north. Experiment has shown that this current displays two maximums, and two minimums of activity, in the twenty-four hours. The double daily periodicity in this magnetic current, is associated with very considerable regularity as regards time. The two minimums occur during the day and night at the same hour; while the maximums take place with somewhat less precision in time, yet with sufficient regularity to be attributable to some force, operating in accordance with fixed laws. The two minimums take place "between the hours of 11 and 1 o'clock, in the day and night respectively. After 1 o'clock at night, the current augments, and attains a maximum at from five to seven o'clock in the morning. The next maximum, or the second one in the twenty-four hours, oscillates between three and seven o'clock in the afternoon. The difference in the magnetic intensity between the maximums and minimums, is very considerable, being greater than the proportion of 1 to 2."

Observations respecting the diurnal magnetic changes, conducted under the direction of Dr. Hayes during his expedition toward the north pole, coincide with those of Dr. Kane, and compare very well with those already described. "From both series it appears that the north end of the needle attains its greatest westerly deviation at one p. m.; its greatest easterly deflection, between two and three o'clock in the morning, its normal position at seven in the morning, and at the same hour in the evening." There is little or no difference in the time of the appearance of the diurnal magnetic phenomena, except as the differing hours of their recorded activity are governed by the local time, at each place of observation. That is, "we have been enabled to state the fact, from the additions to our knowledge of terrestrial magnetism, that when simultaneous observations are made at different places, the motions of the needle are found to be governed by the local time at each place."

"From this it has been inferred that the cause of the daily motion of the needle, is connected with the diurnal motion of the sun. The one o'clock greatest western excursion, is common to all localities in the northern magnetic hemisphere, and is the most constant feature of the daily motion of the needle."

As early as 1832 Prof. A. D. Bache published a paper on the diurnal variations of the magnetic needle. This was a favorite subject of inquiry and research with him; and he subsequently contributed quite a number of essays upon that topic. He also investigated, diurnal magnetism in its relations to magnetic phenomena, taking place at larger intervals of time; and particularly in its relations to those magnetic disturbances, that display their activity upon the periodical recurrence of certain states of the sun. These diurnal magnetic disturbances with their regular daily changes are now universally recognized. That they depend upon daily influences wrought by the sun is a fact pretty well authenticated. They are, indeed, a part of the daily phenomena of the life of the world, equally so with the light of day and the darkness of night.

Magnetic force thus daily exhibited, is universal in extent. It is the great combining and sustaining physical power of the universe. Of its extent no imagination can conceive, and no language can portray its overmastering strength. It holds in its grasp, and keeps forever chained in its proper sphere, every star in the firmament. The velocity of magnetism is computed to be from 175,000, to 200,000 miles per second. Hence, when a magnetic disturbance takes place, whether emenating from the sun, or from some region in space elsewhere, its effects upon the earth, even upon its most widely remote regions, are, to all intents and purposes simultaneous.

Upon the general characteristics of magnetism, Prof. Clerk Maxwell says: "There is no such thing as a vacuum. The interstellar regions are full of magnetism; so full that no human power can remove it from the smallest portion of space, or produce the slightest flaw in its infinite continuity. It extends unbroken from star to star; and when a molecule of hydrogen vibrates in the Dog Star, the magnetic medium receives the impulses of these vibrations; and after carrying them in its immense bosom for three years, delivers them in due course and regular order to the inhabitants of our own world. But this medium displays its energy in another manner. As minute parts have rotary, as well as vibratory motions; and the axes of rotation, form those lines of magnetic force which extend in unbroken continuity into regions which no eye has seen. These lines must not be regarded as mere mathematical abstractions. They are constantly reporting through magnetic instruments, in language not yet interpreted, what is going on from minute to minute, and from century to century in worlds hidden in space. They possess force, strength, influence. They are the directions in which the medium is exerting a tension like that of a rope, or rather like that of our own muscles. This tension has been measured and its strength ascertained. The tension of the medium, in the direction of the earths magnetic force, is one grain weight, on eight square feet. In some experiments the medium has exerted a tension of 200 pounds weight per square inch."

Quiescence of matter maintained by the exercise of the stupendous power of magnetism, must itself become interrupted when the power which maintains it is disturbed. Man himself is not the child of earth alone. Through the influences of magnetic changes and disturbances, he is related to the heavens above. His daily walk, his health, his very existence must be influenced by those causes which arouse the quieting forces of magnetism. Influences affecting magnetism that come from the sun, or from the remotest stars it may be, claim a share in the formation of the human body in the preservation of its health, in the course of its diseases, and in the conduct of its convalescences.

It is proper to understand clearly that magnetic phenomena are not referrable to local causes that originate in the earth. "No perceptible influence whatever on the magnetic needle," says Gen. Edward Sabine, "appears to be produced, either by wind, storms or thunder storms, even when close at hand." This conclusion, although announced in the discussion of what seem to be irregular displays of magnetic disturbance, is applicable to all active conditions of the magnetic force.

The daily throbs of the diurnal magnetic currents, most likely impress periodicity upon the vital forces. Natures laws seem all of them, to work in regular and periodical rythm. And the effects of such laws are far reaching, impressing their characteristics upon phenomena remote and intricate. This is universally observed, from the rapid heart beat; which suggests to man an idea of the passage of time in his inner feeling, even to the creeping revolutions of the mightiest planets; suggesting eternity itself. No intelligence can yet explain exactly how these magnetic changes affect man; but it is known that there is usually a very sensible periodicity in disease. Is indeed scarcely doubtful that in every instance of morbid action, a close observation might detect evidences of periodical exacerbation and decline. As the pulse in man is essential to his life and continued existence, so the diurnal magnetic phenomenon may be supposed to be necessary to the safety and welfare of the inhabited world. It is, without question essential to the production of many of the various forces now in activity on the earth, as well as to the preservation of their present conditions and actions. It has been seen that the less power cannot originate the greater. Storms and climatic changes do not affect magnetic activity; but the disturbances of the magnetic equilibrium by astronomical influences, must modify the condition of matter in many important particulars.

The application of these facts to the discussion of diseases and their remedies, has not yet been accomplished. But that a real connection exists between magnetic phenomena and the daily pathological and therapeutical changes observed in sickness will not be seriously controverted.

The details are yet to be determined. Certain facts being ascertained, and their relations with each other made clear and indisputable, conclusions become inevitable, and science is established. Thus, in the pursuit of definite facts bearing upon rational therapeutics in connection with the action of magnetism, the relations existing between diurnal magnetism, and the regular daily vicissitudes of disease will be sought; as well as the relations which diurnal magnetism sustains to the greater or less applicability of remedies to diseased states, at different periods of the day, or in different stages of morbid progression.

In the discussion of principles it is always proper to avoid every thing that tends to complications and perplexities; and when there seems to be confusion, it is best to eliminate what is desired for presentation, from all other considerations. And it will not be amiss by way of episode, to notice in this place, a regular daily display of the forces of nature, by no means inconsiderable, but entirely disconnected with magnetism. The display of forces now referred to, arises from the revolution of the earth upon its axis. Upon this diurnal revolution depend the tides of the ocean, and the tides, so to speak, also, in the atmosphere which envelops, or engulphs the globe like a grand sea. The tides, and the atmospheric displacement, are caused by the attraction of the moon and the sun, as the earth in its revolution presents the different faces of the globe to their influence. These displacements, both of water and of air, present such great spectacles of the natural forces as clearly prove that the mighty diurnal phenomena of nature, are not all of them derived from magnetism. That this daily revolution of the earth should be productive of certain illy defined effects that have a bearing upon vital action, is very extensively believed. Innumerable examples of a belief in the power which produces tidal changes being likely to affect human life, might be produced ; says dame Quickley, when speaking of the death of Falstaff—" 'a parted even just between twelve and one, e'en at turning o' the tide." It is asserted in a note that this was " a very old opinion, which Dr. Mead in *De imperio solis* quotes, as though he believed it—that nobody dies but in the time of ebb."

The diurnal display of the magnetic and tidal forces are real. They are universal upon the earth, and very great. The operation of the magnetic impulses are simultaneous in all parts of the globe, while the attractions of the sun and moon upon the surface, are exerted in consecutive periods of time. In the investigation of the ulterior effects of the daily periodicity of the displays of magnetism, as well as of lunar and solar attraction, upon the periodicity in vital activity, it will be well to remember that, "a man may as well keep a record of his dreams, as of any set of daily phenomena, if the spirit of grouping, combining, and eliciting results be absent."

It may be assumed then, that it is not unlikely that the periodicity which affects all men in health, and yet more sensibly affects them in disease, is in a great measure derived from diurnal magnetic activity. An additional consideration or two, bearing upon this point, may be added, before leaving it.

Different men would most likely show differences in their sensibility to magneto-electric impressions. This is distinctly exhibited in the differences observed in the susceptibility of the lower animals to such impressions. In the composite character of the human constitution there will be found defects and excesses of electricity or magnetism, in different individuals, representing the same qualities, and in certain animals beneath humanity. These peculiarities are not dependent upon magnetic activity; nor are they associated with any of the consequences of the revolution of the earth upon its axis. They are, however, liable to become impressed by magnetic changes, and that too, in very different degrees, and probably at different times. So that in the same pathological state, affecting different persons, the character of periodical changes may vary, considerably. In one, they may be associated, we may presume, with the maximums of magnetic disturbances; in another, with their minimums; while in a third they may show themselves in conjunction with the periods of the intervening normal states. The *character* of the periodicity of diseases may spring largely from the personal constitution; while its *inception* may really spring from diurnal magnetism, in some one or other of its phases of activity.

But magnetic disturbances in the condition of terrestrial affairs, are by no means confined to simple diurnal exhibitions. There are other groups of magnetic activity well-known, and the laws governing their manifestations are at least partially understood. Gen. Edward Sabine remarks that: " soon after the purturbations in magnetism were definitely referred to the influence of the sun, a further discovery was made of the existence of periodical variations in magnetic activity differing entirely from its regular diurnal exhibition. These variations were perceived to correspond with the decennial variations in the number and size of the spots on the sun's disk. Their maximums and minimums, were seen to be coincident with the increase and diminution of the solar spots. These facts are based upon observations taken at a number of widely distributed points, extending from Canada to Tasmania. This remarkable correspondence between the magnetic storms, and physical changes in the *photosphere*, of such enormous magnitude as to be visible from the earth, even by the unassisted eye, must be held to terminate altogether any hypothesis, which would assign to the cause of magnetic disturbances, or local origin on the surface, or in the atmosphere of our globe. These magnetic exhibitions must be referred, as cosmical phenomena, to direct solar influence.

The coincidence of great magnetic disturbances with the decennial appearance of spots upon the disk of the sun, is fully recognized; and it confirms the idea of periodicity, regularity, law—in the operation of nature. The presence of the sun's spots are, themselves, attributed to planetary influences upon the sun's state, or condition. Consequently the magnetic disturbances thus arising, are referred also, more or less directly to planetary agency. Upon the whole then, it appears that magnetic manifestations of supreme energy and importance, are the actual results of the movements of certain planets; which, in times past have been supposed to be beyond the reach and sphere of the earth. What the movements and influence of other and more remote planetary systems may be, upon the activity of those that are nearer and known to man, cannot now be determined.

Prof. G. B. Donati, succinctly states the conclusion of Prof. Loomis, in the premises under consideration. " Prof. Loomis," he remarks, " has lately announced that the decennial period of the solar spots, instead of corresponding with the distance of Jupiter alone, has a nearer and more regular correspondence with another period, which can be found by comparing together the movements of Jupiter and Saturn. These two planets in fact, occupy in space such positions, that every ten years Jupiter is either in conjunction or in apposition with Saturn." In a limited degree, Venus, Mercury, and Mars also influence the appearance of the spots upon the sun.

In speaking on this subject, Prof. Loomis himself, remarks in substance, that "periodical changes in magnetic disturbance, observed for a number of years, exhibit a series of periodical increments and recessions. The maximum disturbance occurs once in about every ten years, when the sun's spots are largest and most numerous; and the minimum, also, about every ten years, when the spots are smallest and fewest. Of course, the range of time between a maximum period and an intervening minimum period is about five years. These periods of time are not always precisely the same. Certain disturbing elements cause them to vary somewhat. About five revolutions of Jupiter correspond to nearly two revolutions of Saturn, when these two planets return to the same relative position. Their joint action, thus induced at the end of periods of about sixty years duration, cause an extraordinary development of disturbance in the magnetic forces.

As an illustration perceptible to the ordinary senses, of the reality and greatness of the operations of the magnetic force upon the earth and its inhabitants, it will be instructive to notice its effects upon the auroral display.

The displays of the aurora, really present points of coincidence with both diurnal and decennial magnetic disturbances. Diurnal magnetism seems to be incapable of inciting the activity of the aurora; but when the influences of the sun, by its decennial magnetic disturbances, arouse, or originate the electro magnetic phenomenon, known as the Aurora Borealis; the displays of that aurora, partake of the changes observed in the diurnal magnetic currents.

Speaking of the daily phenomena of the aurora, Prof. Loomis says:—" Auroras appear at all hours of the night, but not with equal frequency. In Canada the number of auroras increases uninterruptedly from sunset till an hour before midnight, from which time the number diminishes uninterruptedly till morning. At more northerly stations in North America, auroras are more frequent at midnight; and at places still more northerly, as far as the Arctic ocean, they appear to be more frequent an hour after midnight."

Thus the diurnal auroral phenomena furnish a key which possibly demonstrates the effects of the diurnal magnetic forces; and they afford a plausible explanation of the source of the periodicity observed in the progress of morbid actions. It remains to be seen what interpretation can be derived from magnetic disturbances, regarding the variations in the *types* of diseases, as they manifest themselves at long intervals of time; also, what bearing such disturbances occurring at regular, but long intervals of time, have, upon the variable efficiency of remedial agents, when applied to pathological actions.

This point, also, may be illustrated by the researches of Prof. Loomis upon the auroral display. He says, "the observations of the aurora seem to indicate a maximum every ten years, and a maximum maximorum, every fifty-nine, or perhaps sixty years. If any doubt should remain whether this phenomena exhibits a true astronomical periodicity, it will probably be removed when we discover its connection with the movements of the magnetic needle."

Again it is said, "the aurora is ordinarily accompanied by considerable disturbance of the magnetic needle."

It must not be forgotten that the aurora is not, in its essential nature, a magnetic phenomenon; but it is a tremendous exhibition of electric, or, as some regard it, of magneto-electric activity, which is induced, solely by magnetic disturbances, originating in the movements of planets situated in the profoundest abyss of the universe.

This illustration of the stupendous effects of magnetic disturbances, is sufficient to demonstrate the fact that such disturbances must necessarily exert a most potential influence upon many of the finer, more occult, yet most important elements that are in operation upon the earth; also, upon the earth itself, and all things that have a being, within or upon it.

That such magnetic changes should profoundly impress the human constitution in health and disease, will not admit of a doubt. Such a power is known to exist. Its operations are universal. It has been seen to arouse wonderful activity in great natural forces; and it has also been seen, that the action of the forces so aroused, partakes of the periodicity displayed by magnetism itself. A moment's reflection will disclose the unvarying reason of this. It was said in the beginning of this discussion that magnetism naturally tends to bring matter into a state of quiescence; and this quiescence was disturbed only when the magnetic force itself was distended. Hence, physical or vital phenomena, including the phenomena of health and disease, when influenced by magnetic disturbances, must so far assimilate themselves to the laws of magnetic change, that when magnetism is disturbed, they will also be disturbed, and when magnetism is more or less quiescent, they also must lapse to a condition of corresponding quietude.

Still, the science of magnetism is so new, and the laws of its application to the explanation of diseased actions are yet so imperfectly known, that very little more is now possible than to indicate the nature of magnetic influence, and demand that its pathological and therapeutical significance shall be investigated more fully.

It may not be out of place to make a suggestion or two on facts apparently germain to the question at issue. It is a well established fact, that the types of diseases change, at intervals of time covering a number of years. For instance the most learned prudent and practical men of one generation, will recommend venesection in a specified malady, as a most successful and proper remedy. And they are right. Their testimony cannot be questioned. Yet in another generation, science will severely prohibit such treatment, as hazardous, inapplicable, perhaps fatal. The testimony in the latter instance is equally good with that in the former. Both are right.

There is but one possible explanation of these diametrically opposite opinions. The type of diseases has gradually changed, but it is certain that it will, in the revolutions of years, change again, and again. Diseases, or at least the types and stamina of diseased actions, like that class of natural forces known to be associated with magnetic disturbances, are periodical in the exhibitions of their strength and their weakness. They have their periods of maximum and minimum; sometimes in a subordinate way; not very distinct, one from the other; yet, upon the whole, assuming wide ranges in time, like the sixty year periods of magnetic disturbance and auroral display.

These principles, suggestions and inferences apply with equal force to the corresponding principles of therapeutics. If diseases do not exhibit constant properties at all times; but if, in consequence of modifications wrought upon the human constitution, they vary in some fundamental particulars, in long periods of time it follows, that the effects of remedies must also be impressed by the same constitutional modifications, and they will vary, too, in corresponding periods of time. Venesection, calomel, and antimony are benign and beneficial at one epoch; while at another, they are pernicious in their consequences.

A recognition of these facts, if they can be referred to their rightful causes, is no small advance toward a rational therapeutics. For those causes being once understood, much of the uncertainty of therapeutical appliances may be avoided, by a wise use of them as the basis of treatment.

A survey of what has been advanced in the discussion of this subject, will to some extent at least, warrant the assumption, that while diurnal magnetic disturbances impress a daily periodicity of greater or less intensity upon the morbid changes of any disease in actual progression; the somewhat irregular magnetic disturbance, incident to planetary motion, impress a character, or type, upon diseased, actions from period to period, that is of vital importance in itself, and important in view also, of the applicability of remedies. And there seems to be no reason to doubt that the periods at which types of diseases, and the actions of remedies become modified, may be coincident with any decennial period either within, at, or beyond, the great culminating magnetic disturbance, called the fifty-nine and a half, or sixty year period.

SECTION II.

The relations of light to the human constitution as they affect pathology and therapeutics.

In considering the various properties of light as they impress their characteristics upon human health, difficulties very soon assert themselves. It is certain that light exerts a great influence upon the conditions of health and disease, and presumably, also, on the action of medicines.

Light is a compound, not a simple homogeneous element of nature. An ordinary ray of light is composed of many distinct parts, seven of which are called colors, being visible. Certain invisible parts of the ray are called heat, and others are called chemical, or actinic. These parts severally possess very well defined individualities and powers; each, in fact being capable of assuming independent functions, quite distinct from the others. It so happens that various changes and accidents in nature, are incessantly separating partially, the several constituents of light, and modifying their relations with each other. This greatly augments the intricacies of the subject, without detracting from its importance.

An ordinary ray of light consists of luminous ether, vibrating in various degrees of rapidity. Let this ray strike horizontally on a prism, and this ether, vibrating in different degrees of rapidity, will become separated, and classified in several distinct groups, according to the rapidity of its vibratory motion. The longest waves of ether, with the least vibratory velocity, being refracted, meets the eye, and causes a sensation peculiar to that velocity, which sensation is called red. The shortest and swiftest waves, of course produce a different sensation, which is called violet. The sensations of orange, yellow, green, blue, and indigo are produced by gradually shortening the length of wave, and increased velocity of vibration, from red to violet. Colors, strictly speaking, are sensations only, and have no absolute existence in nature.

When light comes to be considered as a sensation, and the different components of light are treated, as merely, so many different sensations impressing the brain, it then becomes more comprehensible how light or the various sensations caused by the several components of light, may variously affect the health of man. Some kinds of sensation, other than those of color, may become irksome, or prostrating, especially if long continued; and others again, are of an agreeable or bracing character. This degree of sensation, also, may change from pleasure to pain; even from life to death.

There is a special sense prepared through which light acts upon the organization of man; and it will be perceived that impressions of light are here considered, mostly as they affect the system through the sense of light. It is very doubtful if light, that is the colored rays, have much direct effect upon human health, when acting through any other channel. The differences in health between naked barbarians, and civilized man covered with clothing, are not such as to warrant the presumption, that light has any special effect through the surface of the body. But the invisible rays, the rays of heat, and the actinic rays, do most generally act through impressions wrought upon the skin.

Some things have been established respecting the special properties and powers of the several colored rays; and a glance at these properties, will best illustrate the manner in which the different colors act upon the human system. The vibratory movements of luminous ether, capable of making impressions upon the retina, that are perceived by the mind, and range from about 440 billions per second in number, producing the sensation of red, to about 700 billions per second, producing the sensation of violet. This luminous ether is precisely the same matter in all the colors; the apparent differences, arising solely from varieties in its motions. This is proven by the fact, that the colors of the solar spectrum may be changed, one into another, by artificial interference. In other words, the rapid vibrations may be so modified, in activity, that they will become slower, and the less frequent vibrations may be accelerated.

Here again, the principle crops out, that the different effects of the different colors of the spectrum, are not dependent upon any pecularity in their actual substance, but they are, in their widest range representatives of the velocity, or intensity, of a certain kind of motion.

This intensity of motion impresses different sensations upon the brain; while its varying activity is impressed upon inanimate matter, in various perceptible manifestations.

The sensible effects wrought by the actions of the several colored rays, are yet subjects of investigation. Still, many of them have been described, and the conditions of their activity investigated. To understand the influence of light in its various modifications, upon human health, it will be instructive to notice a few of the physical effects of light in other relations.

It is not desirable to dwell upon the characteristics of the invisible rays accompanying the colored rays of light. The effects of heat are entirely different from the effects of color. The slowness of the vibrations attending heat renders it invisible to the sense of sight; just as vibrations of a string when less than 16 per second are incapable of inducing the sensation of sound. So too, the chemical or actinic rays, are entirely different in their effects from any colored rays. They, also, are invisible, being the consequence of vibrations more rapid that the vibrations of the violet rays; just as vibrations in the atmosphere more rapid than 64 thousand per second, fail also to induce the sensation of sound. The effects of chemical rays are a separate and distinct study. It is well to mention however, to prevent confusion, and to simplify the real actions of colored rays, that actinic rays do accompany certain colored rays; beginning with the blue, and increasing in number beyond the violet rays; where they are most numerous, and of course most active.

There is a curious property possessed by the red rays, however, which may be glanced at in passing, which affilliates them in a certain degree with chemical rays: "If a paper rendered sensitive, be covered with glasses of various colors, we shall find in a few moments that the blue tints alone have acted. If we begin however by causing the violet rays to act for a very short time, and the sensitive paper be then placed under a red glass, the action is continued. The red glass, which did not possess the power to originate chemical action. does have the power to continue such action, when it is once commenced. The rays of little refrangibility therefore, have been called continuator rays. This seems to be a trifling affair; yet, in the various modifications of activity in matter throughout the world, and throughout time, it is, without doubt of importance. The action of light upon vegetable substances is a subject worthy of enquiry, as bearing closely upon the influence which it exerts upon human health. Draper took seven tubes of glass, containing water charged with carbonic acid, and introduced into each a leaf of grass. He then caused one of the colors of the spectrum to fall on each tube. After an interval of time, oxygen was disengaged in the tubes exposed to the red and yellow rays; in the others there was none. The red and yellow rays, therefore, are those alone, which give to plants, the property of renewing oxygen to the air. The other rays produce carbonic acid."

From the undoubted power of light, especially in some of its elementary forms, over organic substances, it is just to conclude that changes in the character of light, must prduce modifications in the health of man himself.

There are peculiar conditions of light, obvious to the unassisted eye, belonging to certain seasons of the year. The fact that the days are shorter and the rays of light are more oblique in the winter, certainly would reduce the quantity of light impressing the human being in that season of the year. There are also certain very important indirect ways, that the impressions of light are modified during the winter seasons. The action of light upon the green parts of plants, by which the conditions of the atmosphere are affected, cannot take place in the winter months, for the reason, that vegetation is dormant, and its green parts are destroyed. The prevailing green of the fields and forests is absent. A prismatic color, grateful, to the eye, that is to say, refreshing to the brain, is totally withdrawn. The summer blue of the sky itself is hidden by clouds, and thus another sound of invigorating sensations upon the brain is taken away.

It is impossible to doubt that these facts do impress the human constitution, and in some sensible way modify the character of diseased actions.

In midsummer, on the other hand, another extreme is encountered. The long days, flood with intense light the tedious hours, till darkness is welcomed. Vegetation begins to decay; and the drenching yellow light of August, becomes painful and irksome; and it weakens and prostrates the brain. Possibly, the excess of the red and yellow rays, may do more than irritate the brain by their simple continuance and persistence, in the long days of summer. These rays, says Gamin, "become reductors in the presence of organic substances."

There are various other ways by which the character of the light of day may be modified. The presence of clouds, with their different colors, must affect the character and perfection of light. Hence, long periods of rainy weather, would probably be attended with discomforts derived from this source. Fine particles of dust floating in the atmosphere, change the color of the sky, and of course influence the integrity of the solar ray.

It has been said that the "general accepted theory now is, that the diffusion of light in our atmosphere—the blue color of the sky, and the colors of the clouds; is due to the presence of matter floating in the air. The assumption is indeed, that not only is the etherial blue color of the sky due to minute particles of matter which thus float in the air, but that, were these particles removed, the appearance of the sky would be dead black."

It is known that from the summits of high mountains, the sky really presents a black appearance.

"It is reasoned in advocacy of this theory, that it is a fact in optics, that exceedingly fine portions of matter disperse or scatter the blue rays of light, coarser portions scatter red rays, while still coarser portions scatter all the rays, making white light. The atmosphere is full of aqueous vapor, the particles of which diffuse white light in all directions."

In the application of light in any of its modifications to the cure of diseases, the fatal mistake must be avoided, of presenting a universal remedy. There are existing upon the globe about fifteen hundred millions of people. These represent fifteen hundred millions of cases of fatal sickness, in spite of any remedy that may be presented. These will all have to be disposed of, before the claims of any universal curative agent can be entertained. Many good and valuable remedies are discarded, because they fail to cure fatal maladies. Besides, the remark may be repeated, that man, being constituted and organized, by the assisting influence of light, in its natural state, any *habitual* efforts to change, or warp a constitution thus organized, by imperfect application of light, must frequently fail, and may sometimes, result in unforeseen disaster. Light will prove beneficial when used rationally, only. As a therapeutical agent, it must possess valuable powers. The architecture, so to speak, of any therapeutical system yet devised, is so inferior, to the general architectural features of the science of medicine in other departments, that any improvement which will tend to assimilate it more nearly to the general perfection of medical science, must be esteemed of value. The application of light, in its various modifications, to the relief of diseased states, promises to be an addition to the resources of therapeutics. But its hap-hazard employment, in forms and ways not in accordance with its known laws and properties, is greatly to be deprecated.

Art. 2.—Diseases of the Rectum. External Hæmorrhoids.

No. VII.

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The form of disease known as *hæmorrhoids*, or the hæmorrhoidal affection, is susceptible of division into two well marked classes, which have been recognized in practice from the earliest times. Thus, the variety generally known as *external hæmorrhoids*, differs from that called *internal hæmorrhoids*, not only in situation, but in the symptoms it is attended with, and the anatomical characters revealed by a critical examination. The commonly accepted dividing line between the external and internal forms of the affection is the junction of the skin and mucous membrane of the anus—yet, in certain cases, the mucous lining of the lower portion of the large intestine protrudes, and from exposure to the mechanical irritants it is then subjected to, assumes sooner or later, the structural characteristics of the neighboring integument. Blind and bleeding piles are terms applied to these two forms of the disease—the external variety, owing to its freedom from hæmorrhage, receiving the former designation, and the internal variety, on account of its proneness to discharges of blood, receiving the latter. By far the most important ground of distinction, however, is founded upon the structural characteristics of external and internal piles. Cases of external hæmorrhoids have been reported, in which rupture of a blood-vessel has developed the characteristic hæmorrhage of the internal form of the affection; it not infrequently happens that other phases of internal piles are assumed by the external disease extending along the mucous membrane, or sub-mucous investment of the large intestine, while the proneness of internal piles to protrude and present many of the phenomena of the external disease has already been alluded to. The structural characters of one form are radically distinct from those of the other. In the vast majority of cases of external hæmorrhoids the anatomical changes are primarily limited to the integument, and consist of hypertrophied cutaneous folds, a greater or less degree of exaggeration of the natural rugose state of the skin surrounding the anus, either with or without elongated bluish-white tumors, which may extend from a half inch to an inch beyond the anal margin, to the point of junction of the skin with the mucous membrane of the rectal outlet, or even so far within the latter as to partially intrude upon its calibre. When these tumors have once been developed their site will subsequently be occupied by a cutaneous fold, which may gradually diminish in size with years, but which, so long as it is in existence, is prone to inflame and may even be the seat of phlegmonous inflammation as the result of the application of a very slight amount of local irritation. The morbid anatomy of internal hæmorrhoids as will be shown hereafter, is quite unlike that of the foregoing variety of the hæmorrhoidal affection, and although both forms may co-exist in the same patient, yet it is within the power of a surgeon to discriminate between the results of each morbid process. In connection with what has just been said the applicability of the term "hæmorrhoidal excresence" to external piles is quite appropriate — the different designations conferred upon the various forms of vascular growth, which constitute internal hæmorrhoids will be enumerated when that form of disease comes up for discussion—as it will in the next paper of this series.

The simplest form of external hæmorrhoids is one that occurs in the experience of almost every person. In any standard work on diseases of the rectum and anus, cases are narrated, which present so strong a resemblance to each other that when one has been detailed, the essential features of all have been enumerated. Yet a practical illustration may be the best means of explaining the facts to which I allude :

1. Thus, in the case of a professional friend of advanced years with whose course of life I am quite familiar, the development of the following phenomena have not only caused him pain and annoyance, but have likewise materially interfered with his medical practice : whenever this gentleman permits any encroachment upon his generally regular habits he is annoyed by an obstinate itching of the anus, which, after persisting from twenty-four, to thirty-six hours is succeeded by a painful swelling of the skin at one point near the anal margin that prevents walking and compels him to assume the recumbent posture. After a day or two of rest, the swelling gradually subsides, and with its subsidence, the pain disappears. Other symptoms may be added to the above, but the annoying itching, followed by painful swelling are present in every

attack. Sometimes a few drops of blood succeed a passage in the earliest phase of an attack. If this gentleman noticed promonitory symptoms on a Sunday, he knew that in all probability he would be unable to resume the active duties of his calling before Thursday, or Friday of that week. Experience taught him to at once give up walking and make use of certain remedies—that by pursuing this course he would be able to resume his work after three or four days confinement, and that he could then count upon from a month to six weeks freedom from attack. The most minute and painstaking examination by a number of different surgeons failed to reveal anything abnormal in the parts about the fundament except a slight thickening of two of the cutaneous folds on the right side of the anus—the part where the swelling and pain were always most marked during a paroxysm. When an attack first came on, there would be redness of the integument; with the subsidence of the itching and the advent of pain and soreness, the whole rim of the anus would be swollen, but the œdema was most marked on the right side, at the point where the anal folds were found infiltrated and thickened during the intervals between attacks. A painful spasm of the anal muscles was one of his most distressing symptoms during an attack.

Although there were no other abnormal appearances discoverable in this case than those just enumerated—a tufting and apparently innocuous infiltration of two small cutaneous folds near the anus between attacks, with the ordinary appearances incident to anal congestion when pain was greatest—yet the frequency with which paroxysms were developed served to greatly impair this patients ability to discharge the duties incident to his calling, and served to inflict upon him a vast amount of physical pain. The slightest irregularity in his habits; the most trifling deviation from the plain diet he limited himself to, served to excite an attack. In every other respect his health was excellent—yet the difficulty just described incapacitated him in the manner mentioned. An important point connected with this case is the fact that there is not the slightest febrile reaction during an ordinary paroxysm.

2. Nearly ten years since I was called to the bed-side of an acquaintance, who had assumed the duties of proof-reader in a large publishing house in New York a few months before. He was compelled to remain indoors in order to comply with the requirements of his new vocation, and this radical change of habits to one who

had never before engaged in a sedentary pursuit soon began to tell upon his general health. He lost strength and appetite; his countenance became sallow and he rapidly emaciated. Yet he had been able to work at his desk until the evening before I was called to see him, when without warning of any kind, he was attacked with pain and swelling near the anus. His suffering was so acute that he feared the slightest movement of his body would add to it, so he resolutely refused to attempt to change position in order to facilitate an examination. Physical exploration revealed an œdematous state of the parts about the anal opening, with a round, prominent swelling on the right side, about half an inch from the margin of the anus. To the touch, the swelling felt hard and resistant: its edges were not distinctly marked, but gradually merged into the healthy tissues surrounding it, without any distinct line of demarcation. The patient stated that the sitting position excited unbearable pain; that occasional paroxysms of pain came on even when he assumed the easiest posture; and that in addition to a sensation as if the rectum were distended, there was a constant sensation of throbbing in the fundament which was extremely disagreeable. There was no great elevation of temperature—pulse 72, and not irritable. He also said that his bowels had been constipated for three days; that he was at the water-closet the evening before when the pain came on; and that the first symptom was developed by a difficult motion which caused him to strain violently. The fact that the rectum was distended with dried and hardened feces was apparent to the most hasty observer, and despite the pain excited by the procedure, the lower part of the large intestine was evacuated by enemeta of soap-suds and castor oil. An ointment consisting of equal parts of the aqueous extract of opium and extract of belladonna was applied to the swollen parts, and a soft piece of linen, moistened with lead and opium lotion (one drachm each, of acetate of lead and pulverized opium, to a pint of boiling water) was carefully applied to the fundament and changed as soon as it became dry. An hour subsequently, the pain still remaining intense, a grain of morphine was dissolved in an ounce of water, and given to the patient's attendent, with orders to administer a teaspoonful of the solution every fifteen minutes until four teaspoonfuls were taken, or until relief was obtained—if the pain persisted after the fourth dose, a half hour was to be allowed to pass between succeeding doses. The following morning I found the patient in a comfortable condition, and learned from the nurse that the pain was sensibly relieved by the first dose of the morphine (one-eight of a grain); that he became drowsy after the second, and fell asleep shortly after taking the third, and slept until 4 a. m. The swelling at the side of the anus remained, but the œdema of the anal margin had subsided. That evening the parts were so nearly free from pain that the patient was anxious to get up and dress himself. Four days subsequently a thick fold occupied the site of the former swelling to the right of the anus, and as time passed, the infiltrated cellular tissue which gave thickness to this duplication of skin assumed a healthy character, and the cutaneous fold became smaller. Years afterwards this patient called to consult me in regard to this tab of skin, saying that it was very disagreeable—that it rendered neighboring parts uncleanly, was the caused of a disagreeable secretion which continually bedewed the part, and often became inflamed at which times he suffered great agony. A physical examination at that time (1873) revealed a thin, flexible fold of dark colored skin, which was surrounded by a broad circle of similarly discolored integument. In accordance with the advice given him, the patient had this cutaneous tab snipped off, with a pair of scissors, after which I heard no more complaints from him.

3. During the autumn of 1872, I was called upon to prescribe for a lady who had been taken sick on the cars between Philadelphia and New York. Her husband desired something to temporarily relieve her of the agony that had been induced by an attempt to evacuate her bowels shortly after leaving Philadelphia. Before administering morphia, I called to see the patient at her hotel and learned the details of her case. She was about thirty-five years of age, and since the birth of her first and only child, six years previously, had suffered greatly from "bleeding piles." Whenever her bowels failed to move daily, the next motion would be followed by a profuse hæmorrhage. Occasionly, the latter would recur with such frequency as to reduce her strength, and render her anæmic. At the time I saw her, she was returning from a short visit to some friends in the South—a visit that had been made with the hope of recruiting her strength. During the six weeks she was in North Carolina, the piles did not trouble her, and her menstrual flow was more nearly natural than it had been for years. She also gained flesh and strength, and was returning to her New England home

greatly encouraged, when the irregularity of life incident to traveling interfered with the daily evacuation of her bowels, and induced the accident that led to my being consulted. She also informed me that she never before suffered the same as she then did—that she was not sure, even, that the usual hæmorrhage had occured. Having finally obtained the patient's consent, I made a careful physical exploration. The pulse was 82 per. minute, but the skin was cool and moist. Three small enlargments could be felt on the inner surface of the rectum, but they were not sensitive, and no blood followed the withdrawal of the finger. Externally, however, two small, round projections existed - one at the side, and the other, directly behind the anus. The integument in the neighborhood was not perceptibly inflamed—over the circular enlargements it presented a bluish tint. When the finger was passed over the swellings, it seemed as if a couple of small marbles were embedded in the tissues, so hard and round were the projections. A little persuasion induced the patient to consent to the plan of treatment I proposed and after placing her in a proper position, I drew the keen edge of a scalpel over first one and then the other swelling. Very little pain, indeed was excited by the operation, and as soon as the cuts were made, I was able to turn a clot of blood out of each wound. After scraping out the clots with the handle of the scalpel, a little dry lint was placed in the bottom of each cavity, and the patient given the quarter of a grain of morphine and put to bed. A dose of oil was administered next morning, and the bowels were unloaded. The following day the patient insisted upon continuing her journey. She said that she suffered no pain after the completion of the operation, and so far as a stranger could judge, she seemed in excellent health and spirits the day she left the city.

In order that the symptoms of this affection may be understood, and its pathological characters properly comprehended, a glance at the anatomical conformation of the parts implicated must be premised. The mucous lining, and the cutaneous investment of the anal orifice are remarkably delicate in structure, and are richly supplied with nerves and vascular trunks. Again, the folds of integument which radiate, in a circular direction from the anus, are peculiarly prone to react to a trivial local irritation, by a copious flow of arterial blood to the part—a physiological phenomenon which denotes the readiness with which the vaso-motor nerves of the neighborhood can be rendered active, and an important circumstance in explaining the comparative ease with which inflammation is excited in the tissues surrounding the anus. The elasticity and distensibility of the structures surrounding the lower part of the rectum, the severe mechanical compression to which they are occasionally subjected, and the peculiar manner in which the blood supplied to the part is distributed, are circumstances which explain, to a certain extent, the reason why these structures are so frequently diseased. Whatever tends to congest and inflame the tissues about the lower part of the rectum, in like manner, tends to bring on an attack of piles as perhaps the simplest expression of such irritation. The loose and elastic cellular tissue so necessary for the performance of the functional offices of the parts, supports the vast body of vessels, both arterial and venous, which form an essential part of their structure. These vascular trunks do not pursue a straight course from their origin to their distribution—on the contrary, their direction is tortuous and wavy. When it is borne in mind that with every distension of the anal aperture, these vessels are mechanically stretched and their direction forcibly changed, vascular dilatation, or even vascular rupture, will no longer seem an inexplicable local lesion.

In the first of the foregoing cases an examination made at a time when the patient was free from active symptoms revealed nothing but a slight thickening of two of the cutaneous folds on the right side of the anus. When an acute attack came on, the integument at this point became red, hot, swollen and painful—in short, inflamed. The rim of œdematous infiltration about the margin of the anus—the "Serous" Hæmorrhoid of Howship—is a condition commonly developed in that situation by inflammation of the neighboring parts.* It was present in more marked degree in the second case. This second case was also characterized by a round, prominent swelling on the right side about half an inch from the margin of the anus, which, to the touch, was hard and resistant, but which was not distinctly defined—its edges gradually merging into the healthy tissues around without any distinct line of demarcation. It is a noteworthy fact that this swelling persisted after the subsidence of the œdema of the anal margin, and when it did pass away, it left a thick fold of distended integument in its place which gradually grew thinner and thinner and ultimately assumed the characters of a thin tab of redundant skin. Resembling the second case, so far as the suddenness of attack was concerned, the last case differs from both of the others in important respects. There was no inflammation of the skin and the two globular swellings near the verge of the anus were distinctly circumscribed. They also presented a blueish tint, and the operative procedure adopted revealed the fact that they were due to a collection of blood in the cellular tissue of the part—the result, in all probability of the rupture of a vascular trunk, brought on by excessive straining. The pathological character of two cases is quite clear—in the first, there was inflammation of the integument, in the last, extravasation of blood from a ruptured vessel, but in the second case, the condition of the parts is not so apparent and needs explanation.

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* HOWSHIP: *Practical observations etc., on Diseases of the Lower Intestines, and Anus*, 3d Ed. London, 1824. p. 208.

Without entering into the controversy which has been waged for many years concerning the true character of the various forms of external hæmorrhoids, it will suffice to say that the cases similar to the one first detailed are so numerous, that no one denies the fact that all the phenomena of the disease may be excited by a circumscribed inflammation of a part of the anal integument. Again, the same facts render that form of the disease due to extravasated blood a clinical phenomena the truth of which cannot be questioned. The anatomical characters of tumors such as were developed in the second case however, are the ones about which there is difference of opinion. The symptoms closely resemble those present in both the other forms of the disease, but the character of the appearances present, and the nature of the swelling approximates the hæmorrhagic, more than the inflammatory form of the affection. One class of observers ascribe the phenomena to a coagulation of blood in the veins of the part, to which the swelling etc., are secondary; others believe that there are local varices, and ascribe to the dilated channels through which the blood passes, an important influence in developing the thrombi; while a third class fails to see any difference between the form of disease such as existed in the second case, and that which was present in the case of the lady whose history was detailed last. That there is an important—a radical difference—the following facts will demonstrate. In cases like the last the clots are contained in a distinct sac, formed of condensed and inflamed areolar tissue, without any communication with neighboring veins, while in cases similar to the second one narrated, it not infrequently happens that the swellings can be made to disappear. temporarily, by a little careful manipulation of the part. In certain of the latter variety of cases, I am confident of having been able, by squeezing the part, to empty the dilated veins of clots of coagulated blood. The subsidence of the swelling was but temporary—the result of this manipulation has generally been deleterious to the part—and in a short time the enlargement was more marked than before. The result, however, has been such as to satisfy me, beyond a reasonable doubt, that coagulation of the blood in the vessels of the parts near the verge of the anus was the immediate cause of one form of external hæmorrhoid, and a careful study of the phenomena preceding and accompanying its development has furthermore convinced me that this coagulation was induced by a prolonged distension of the anal outlet, generally caused by the evacuation of large masses of hardened feces, and that this coagulation occurs indifferently in healthy and diseased vessels, the prime requisite being such a degree of distension of the surrounding elastic tissues as will interfere with the current of blood in the vessels and produce a local stagnation in the circulation—a condition eminently favorable for coagulation.

The anatomical conformation of the diseased part explains the intensity and character of certain of the symptoms experienced by the patients. The richness of the structures about the anus in nerves is one reason why inflammation, hæmorrhage or thrombus excites pain of such severity. Spasmodic contraction of the muscles in the neighborhood—the sphincter and levator ani—retract and compress the highly sensitive tissues, and account for the sudden and paroxysmal accessions of pain, so commonly developed just as the exhausted sufferer is falling asleep. The itching of the anus, which was so prominent a feature in the history of the case just narrated, quite frequently precedes the development of the affection in those cases in which an inflammation of some of the structures about the anus is the morbid anatomical element. As a general rule, in those forms of the complaint in which extravasation, or coagulation of blood causes the sudden swelling of the parts about the anus, and the other phenomena such as were noted in the two remaining cases, pain, severe in character and sudden in its development, is the first symptom to manifest itself. Then pain, throbbing, and a sensation as if some foreign body were firmly embedded in the anus, attend the development of swelling and œdematous infiltration about the terminal orifice of the large intestine, it matters not whether circumscribed inflammation, hæmorrhagic extravasation or a coagulum in the vessels of the part is the morbid anatomical element in the case. Attention to the symptoms just developed in that form of the disease characterised by inflammation of the integument of the anal region will occasionally enable the sufferer to either prevent, or materially abridge the duration of certain attacks. In reference to such cases, Mr. Alligham writes as follows:

"It is desirable to notice the earliest, or rather the premonitory symptoms of one of these attacks, as by this knowledge it may possibly be warded off, or at all events, much mitigated. Not unfrequently a little extra eating and drinking, without any absolute excess, is the exciting cause; an indulgence in effervescing wines—full-bodied ports, or new spirits — being especially dangerous. The earliest symptom is a sensation of fullness, or plugging up, and slight pulsation in the anus; there is also a tendency to constipation, inducing a little straining; this is frequently followed by itching of a very annoying character, coming on when the patient gets warm in bed, keeping him awake for some time, and inducing him to scratch the part. In the morning he finds the anus a little swollen and tender, and if he be an observant person with regard to himself, he will notice, after a motion a slight stain of blood. Now all this may pass off with the simplest care and the slightest medication; but if the patient neglect himself, it will surely be the precursor of a more or less severe attack."*

Among the influences which operate for the production of the various forms of external hæmorrhoids the most powerful predisposing causes are *age*, *sex* and *occupation*; while *constipation* and *straining during defecation* are the most potent agents in exciting the disease. With advancing years, the walls of the blood vessels degenerate — their inner tunics become rough and their walls, friable. Again, all the tissues of the frame become less elastic— not only is the act of defecation interfered with by the increased rigidity or the parts about the anal orifice, but constipation, with all its train of attendant evils renders the motions hard and irritating. The sedentary habits of the female sex seems to render women peculiarly prone to the affection, constipation is by far more common with women, than with men—with many females, especially those of advanced years, the rectum is permitted to become distended with hardened feces, and to remain in this condition habitually. If this condition is permitted to develop among those who have borne children, and in whom tissues about the outlet of the pelvis are already in an abnormal state from the great distention to which they were subjected in parturition, one or other form of external hæmorrhoid is sure to develop. The most common variety, in such cases, is the hæmorrhagic—a difficult motion, or it may be, some very trifling bodily movement, precipitates the crisis, a bloodvessel ruptures, and in a short time, the patient is in an agony of pain. But this state of affairs is by no means limited to one sex—shoemakers, tailors, etc., are liable to suffer in the same manner. Men who change from an active to a quiet life very seldom escape. External hæmorrhoids not infrequently develop in young, hardy men, who for some reason or another have neglected their bowels, and become constipated. One class of young men of this kind is especially subject to the disease. It is constituted by young men, generally the sons of farmers, who work at home during the greater part of the year, and when winter comes on, resort to towns and cities for educational purposes. Like most young persons of both sexes, they are profoundly ignorant of the first principles of physiology, and having always been healthy without any effort on their own part, they imagine they will continue so. Were I to attempt to estimate, from personal experience, the individuals among whom the different forms of hæmorrhoidal disease of the external variety is most commonly found I would have no hesitation in saying that in young and vigorous men, the disease was caused by thrombosis; in aged individuals of both sexes, it was hæmorrhagic; while in middle age, it is most generally inflammatory.

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* ALLINGHAM: *Diseases of the Rectum.* Amer. Reprint, Second Ed. Phila. 1873, p. 80.

The treatment necessary, varies with the stage and variety of the affection. In the earliest phase of the inflammatory form, well-directed and judicious efforts frequently cut short an attack. This is true, whether the morbid anatomical element be the fold of integument remaining after the cessation of other forms of the disease, or consists of a slight degree of infiltration of the delicate skin about the anus—the latter condition being one in which acute inflammation is readily excited by a slight derangement of the circulation, due either to an interference with the return of blood from the part caused by pressure on the veins from a distended rectum, or engendered by a local irritation, causing stasis. A light and unstimulating diet, free from condiments of all kinds; hot baths to open the skin, together with the most scrupulous cleanliness of the irritated part; and careful attention to the bowels, are the measures indicated. If the lower bowel has become distended, a warm enema, to which an ounce of castor-oil has been added should be employed, when the patient is anæmic, cod-liver oil should be administered three times a day, not only for its general, but for its local effect. These measures, combined with rest, will cut short an atrack of inflammation in the structures about the rectal outlet, in the vast majority of cases. If they are unsuccessful, future treatment will depend upon the anatomical characters of the inflamed parts. When there is diffuse infiltration of the integument, it would be well to resort to the local application of opium and belladonna. In cases where the pain is very great, a large poultice should follow the inunction of the opium and belladonna ointment. Should the pain still continue severe, opium should be administered by the stomach or hypodermically. Very little good accrues from narcotic enemata, and without the case is urgent, I prefer to administer the drug by the stomach. Crude opium—the powder or pill—is the worst form in which that valuable drug can be given. Patients differ so widely in their apparent susceptibility to the drug, that no physician can tell how any given person will bear it, until he has tested the latter's ability. The plan that has worked best, in my experience, is to employ some one of the opium alkaloids—as the sulphate of morphia—and administer it in very small doses, frequently repeated, until the desired effect is produced. Thus, divide a grain of morphia into four powders, and direct the patients attendant to dissolve one in four teaspoonfuls of water, and give a teaspoonful of this solution, every fifteen minutes, until the patient is free from pain. Should the pain persist after one powder is exhausted, dissolve another in the same way, and administer as before. If the second powder is ineffectual, have another one dissolved in the same quantity of water, but give the teaspoonful doses at thirty, instead of fifteen minute intervals. By persuing this course, all danger from the administration of an over-dose is avoided, and a much smaller quantity than usual, will be found to produce the desired effect. I have known quiet, painless sleep to be induced in a patient by a quarter of a grain of morphia, who had taken from two, to three grains on each of the two preceding nights. These minute doses are not only as effectual in relieving pain, and producing sleep, as larger ones, but they rarely induce vomiting and morning sickness, the following day.

If the inflammation developes in the tab of skin such as has already been described, it becomes swollen and œdematous and may be followed by ulceration or suppuration. When the symptoms are due to inflammation excited by extravasated blood, or local coagulation, the pain may be equally severe and urgent. If the tab of skin is large, or if the disease seems to be confined to the redundant integument, it is often good surgery, to snip off the diseased part. This need not be a painful operation. With the ether-spray, the fold of skin can be frozen, grasped with a pair of bull-dog forceps and cut off with a pair of properly curved scissors. The whole process need not require more than a minute— the painful part, but a few seconds. The treatment required afterwards, will be that already described for the relief of pain in the preceding paragraph.

In those cases in which the observer finds that the suddenly developed pain is due to an extravasation of blood into the meshes of the investing cellular tissue--or, in which the inflammatory symptoms are dependant upon such hæmorrhagic extravasation— the most urgent indication is to evacuate the sanguineous tumors by laying them freely open. The plan pursued, and recommended by Mr. Allingham, possesses many advantages. He pinches up the tumor between the thumb and finger of the left hand, transfixes its base with a curved bistoury and cuts out—at the same moment by pressure with the thumb and finger, he extends the clot—and the operation and after-treatment are completed by inserting a fine piece of cotton-wool into the cavity of the sac. Whenever the clotted blood is removed, these patients convalesce rapidly.

When the pain and swelling are due to coagulation of the blood in the vessels near the anal orifice, an anatomical condition is induced which cannot be relieved by cutting off, or laying open the part. The indications for treatment are to so control the inflammatory action as to prevent the formation of abscesses, sinuses and fistulæ. This can only be done by keeping the patient quiet, with his bowels open, and his skin active until the inflammation subsides. To prevent local irritation either from the action of substances ingested, or those brought in contact with the parts externally, the diet should be bland, and the patient kept in the recumbent posture. Local applications of anodynes will materially relieve the pain; of these, the best is an ointment composed of equal parts of the aqueous extract of opium and the extract of belladonna, which should be freely applied to the parts about the anus. A poultice, such as was recommended before will prove serviceable. The internal administration of opiates, according to the plan heretofore described, should be resorted to, whenever the pain becomes severe. These measures will do all that can be done towards the prevention of abscesses and fistulæ—further remarks on the prevention of those conditions will be made when those subjects are treated of hereafter.

There are many points connected with the treatment and prevention of hæmorrhoids which cannot be dwelt upon until the internal form of the disease has been described. Further consideration of these subjects will therefore be deferred until the conclusion of the next article of this series, which will be devoted to that form of the disease called internal hæmorrhoids.

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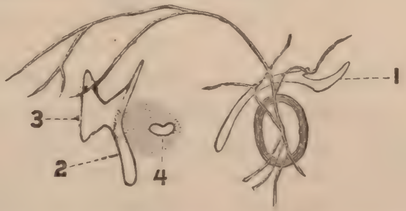
Art. 3.—Rupture of the Choroid.

By W. R. AMICK, M. D., CINCINNATI, OHIO.

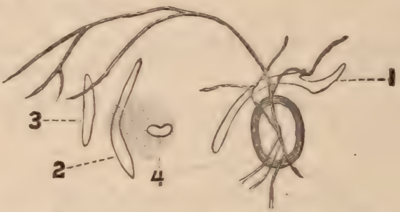
Charlie Ulner, æt. 10, schoolboy. On Sept. 23rd, he was playing with some of his comrades when one of them struck him over the left eye with a stick. Immediately following the blow he was unable to see anything with the eye. Over the inferior margin of the orbit there were three or four abrasions of the integument. There was considerable swelling and tumefaction of the lids, especially the upper one which hung in a great fold down over the cornea. He also complained of severe pain in and around the eye-ball Under an antiphlogistic treatment the swelling of the lids passed away leaving a ptosis of the upper lid. The iris, when the inflammation of the lids had passed away sufficiently to admit of an examination, was considerably dilated, and would flap like a curtain when the eyeball was moved.

At the end of a week after the injury was received, he was not able to distinguish objects, but could see that there was "something moving" when the hand was passed across the field of vision about ten inches from his face. He could readily tell when the eye was shaded and when it was not. The intra-ocular pressure was less than that of the opposite eye. The pupillary margin of the iris turned slightly backward. The retinal vessels could not be seen with the ophthalmoscope, the disk appearing as a blurred spot. This inability to see the details of the fundus, no doubt, was due to hemorrhage into the vitreous. As there was considerable conjunctivitis remaining, an astringent of sulphate of zinc was ordered, and the bandage and compress continued.

Fourteen days after the accident vision in the injured eye was $\frac{6}{200}$. He did not gaze directly at the letter, but would look above and around it, moving his head in different directions. The intra-ocular pressure had increased until it was about the same as that of the other eye. When the iris contracted, the pupil assumed an oblong shape, extending toward the superior internal angle of the orbit. The iris did not move to and fro when the eye was moved, as it did a week ago. The peripheral fields of vision were somewhat impaired, but no contraction could be noticed at this time. Central vision appeared to be the most impaired, yet he did not notice any scotomata in any part of his vision. With the ophthalmoscope a few floating bodies could be seen in the vitreous humor. The disk was hyperæmic. There were to be seen the following ruptures of the choroid, inverted image, as represented in the engraving.



The size of the disk and length of the ruptures, together with their relative locations, are approximately represented, as they appeared with the ophthalmoscope and a two and a half-inch plus lens. The first rupture begins on the inner side of the lower portion of the disk and extends upwards and outwards. When just above the level of the disk it turns horizontally outwards. After it has passed over the latter, it then curves slightly downwards, and then turns again upwards and outwards. From the horizontal portion a small rupture extends upward and outward, parallel with the termination of the main rupture. The second rupture begins below the macula lutea and extends upward through the inner portion of the dark reflex that surrounds that point and then turns outward. This rupture was very marked on either side of the dark reflex, but through it, it could only be traced as a fine yellowish white line. On the inner side of the dark reflex is the third rupture, which extends upward and somewhat outward. In the external portion of the dark reflex is located the fourth and smallest rupture. It is irregular and has more of a horizontal direction than any of the others. The relative lengths of these ruptures can be obtained by comparing, or measuring them with the diameter of the disk. The diameter of the disk is a little less than a line. The retinal vessels could be traced across the ruptures, especially the one nearest the disk. At different points along the ruptures, small deposits of pigment could be seen. Twenty-three days after the accident, another ophthalmoscopic examination was made, when it was found that the second and third ruptures had united and formed a large irregular one, as seen in the second engraving.



The eyeball was larger than its fellow and the tension was more marked. Yet, notwithstanding all this vision was improved so that looking around the letters, as before, it was $\frac{5}{100}$. The improvement in vision was no doubt due to the more complete absorption of the hemorrhage. The hemorrhage from the ruptured choroid is what caused the sudden loss of vision upon receiving the blow. At this time the ptosis from the upper lid had about disappeared, and there was very little irregularity of the pupil. The latter would act under the stimulus of light, but was more sluggish in responding than its fellow. When at rest it remained more dilated than the pupil of the right eye.

The tremulousness of the iris at first was probably due to paralysis, as a result of the blow, besides there appeared to be a little more depth of the anterior chamber of this eye, which was, possibly due to a slight posterior displacement of the lens. This would relieve the iris of its posterior marginal support, and also allow the pupillary margin to turn backward.

Mackenzie states that he has seen a small puncture of the sclerotic and choroid, near the edge of the cornea give rise to tremulousness of the iris and incomplete amaurosis, followed some years after by opacity and ossification of the lens. He also states that in consequence of blows upon the eye, we frequently meet with lacerations of the sclerotic and choroid, with or without rupture of the conjunctiva. The place of the eyeball most apt to burst under a blow, is immediately anterior to the insertion of the recti-muscles.

Lawrence, in speaking of wounds of the choroid and ciliary body, says the effusion of blood into the anterior chamber is not in itself a matter of consequence, but it shows that considerable violence has been inflicted on important textures. We sometimes see an effusion of blood behind the iris, altering the color of the pupil, making it visibly red in a good light. This must always be regarded as a very unfavorable appearance, indicating that the injury extends to the central and most important parts of the eye. When the ciliary body or choroid coat is injured, the pupil exhibits a remarkable change, which must be referred to the partial injury of the ciliary nerves, necessarily attendant upon such an accident. As these nerves, which supply the iris, run between the sclerotic coat and choroid, they must suffer when those tunics are injured. There will be a partial paralysis of the iris corresponding to that portion supplied by the injured nerves, consequently there will be an irregular dilatation of the pupil.

As we have seen in the case presented, we had an irregular or oblong pupil. The irregularity corresponding with the rupture. If the rupture had been nearer the ciliary body, we would have had a more extensive paralysis of the iris from this source, unless the rent had only produced a functional disturbance.

After rupture of the choroid takes place, there is always more or less stretching of the sclerotic. This would indicate more elasticity in the latter than in the former, and greater resisting power in the sclerotic than in the choroid. Rupture of the choroid generally takes place in the posterior part of the organ. Why this is so has not been sufficiently proven, but it is supposed that its closer connection with the sclerotic at this point has something to do with it.

Art. 4.—The Promotion of Medical Culture and Self-Protection by a New Order of Fellowship.

By J. R. Black, M, D., Newark, O.

It will not be disputed that the present era is one of extraordinary progress and growing light. Improvements in art and discoveries in science succeed each other in a truly rapid order. The science of medicine has partaken largely of this onward tendency. Anatomy and physiology during the last two-hundred years have undergone very notable advances. Remedies for disease have been greatly increased, made far more efficient and unobjectionable; not a few diseases once very fatal or prolonged are now under excellent control; injuries, deformities and pain are brought into a subjection no preceding age has equalled. In richness of material, in fertility of resources, the healing art is getting better and stronger every day. The populace has been the chief gainers by this advancement, and this is as it should be in all the ultimate aims of our avocation.

It is quite opportune to look at the *status* of the promotors of this advancement. Has their standing improved, has it advanced with their advancements, have they been benefitted and honored in anything like a commensurate degree to their deservings? I trow not. In proof of this, I have only to present the familiar fact that in every community, there are hundreds, nay thousands of persons entirely oblivious to the superlative claims and achievements of regular medicine, who are wholly incapable of a correct judgment and discrimination between the best scientific worth, and the most abject charlatanism. They are seen to honor and countenance one quite as highly as the other; nay, the boasting empiric often receives the higher meeds of honor and of praise. Those in high places, as much, if not more than in low, turn their backs upon the genuine promoters of scientific medicine; they ask in preference, counsel of empirical dogmatists, apparently regarding the new schools of medicine as the better advisers as well as the leaders of medical progress. Readily is it granted, that those unversed in medical subjects have no criterion by which to know the quack from the man of learning. The former may use false and cunning arts at the bedside; calling every ordinary case of simple angina, diphtheria; every case of mismanaged and therefore tedious bilious fever, typhoid; every sympathetic disturbance about the head, brain fever; and not one in a thousand of the laity are capable of detecting his ignorance much less do they suspect his cunning. As a consequence, he usually receives more credit for skill than the honest intelligent practitioner, he draws around himself the *eclat* of extraordinary skill in slaying the lions of disease, when in fact they were only mismanaged lamb-like disorders.

The law refuses any efficient aid or protection against the intolerable assumptions of empiricism, it will do nothing to uphold, encourage or protect the genuine cultivators of science; it grants charters to almost any half dozen of doctors seeking after notoriety as college teachers, making them the unrestricted granters of diplomas until every ignorant pretender and travelling mountebank of the day, can flaunt two or three of them in our faces. On precisely the same level in public estimation are the hydropathic, eclectic, homeopathic and regular M. D. What, if many of the irregular schools are so ignorant of the human body that if asked to describe the os uteri they will take it to mean a bone; if asked to describe the relations of the prostate gland in the female they will make the attempt.

Then the so-called new schools of medicine boldly proclaim that they are the progressive and most advanced cultivators of medical science, a brazen claim tens of thousands of lay persons—who think themselves exceptionally well informed, actually believe. If such persons be told, what is strictly accurate, that of all the discoveries that have served to lengthen the average duration of life, that have given the physician a power over many diseases and injuries only a short time ago undreamed of and unknown; *not one* has been made by the followers of the schismatic schools of medicine, they will be incredulous, and regard it simply as the plea of a sordid self interest. Few things are more difficult to overcome than popular prejudices, and to create these against regular medicine is the strong point of the followers of the irregular schools. Nearly all their leisure time is employed in this kind of medical demagogism, in making converts to their creed, and in depicting the imaginary evils of regular medication; they have neither the inclination, time nor ability to add to the sum of medical knowledge. Indeed, all of these systems being founded and held together by certain dogmas, to uphold them is the highest intellectual ambition of their followers; dogmas which must not be disputed or questioned. A more effectual check than this to progress the long experience of the dark ages has abundantly verified. The revival of such a dark age method is disgraceful to those professedly engaged in any scientific pursuit, and ought to be resented to the utmost. It was this method which held the minds of men in chains for centuries, and which has, and whichever will put a bar upon progress in the irregular systems of medicine. Ever since the time of Bacon regular medicine has acknowledged no dogmas—it has no creed or scientific doctrine. To it the most heretical course is for any class of medical men to place arbitrary limits on investigation of dogmatic assumptions, for instance as to dosage, or the department of nature from which remedial agents may be drawn. Entire freedom to question one mode of treatment and advocate another—or whatever experience has demonstrated is the most effective in the removal of the disease, is the chief corner stone of medical orthodoxy. Heterodoxy is to attempt to fetter the judgment by the mere *ipse dixit* of a creed or authority. A regular physician may advocate the doctrine, and present the evidence that the best mode of coping with disease is the more frequent use of cathartics, or their entire abandonment; he may advocate that small doses are better than large, or that vegetable remedies only should be used in the treatment of disease and be perfectly orthodox. But the moment be seeks to erect his judgment into dogmas, or into a system of practice from which others are not to depart, he forfeits all title as a free thinker and genuine promotor of medical knowledge. Should a follower of Hahneman investigate for himself and act upon the light he may thereby gain, whether, for instance, the best way to remove the filth which often disorders the stomach and bowels is not by cleansing emetics or cathartics, he would forfeit his standing as a genuine homeopathist. If he gave large doses instead of very small, when he thought it best for the good of the patient, he would be, to all intents and purposes—a regular physician.

The eclectics say they select only what is best in other systems of practice; in other words, they repudiate being cultivators and are only unscrupulous appropriators of other men's labors.

But it is not my object to enlarge on the dark age methods of the irregular systems of medicine, or to portray the utter falseness of their pretensions as benefactors of mankind through their discoveries in medicine, as they have made none; my purpose is to enquire if the disadvantages under which we as a profession labor cannot be lessened—if we cannot protect ourselves—no others being likely to do it, if there be not a mode of rendering better encouragement and sustenance to scientific progress, to a higher standard of qualification, and at the same time secure for ourselves the honors and rewards to which we are rightfully entitled; in short, if we can not infuse some of the progress of the age into our *status* as a profession.

As before remarked, though regular practitioners have introduced all the great improvements that have been made in the healing art, unscrupulous rivals appropriate them, reviling the discoverers as old fogies, creating a wide spread disaffection and distrust in influential circles toward scientific medicine. In this way, the sphere of usefulness of legitimate medicine has been lessened, damping the ardor and spirit of scientific culture to a far greater degree than any unreflecting person can credit. By a very large class of estimable people the only promoters of medical advancement are regarded as the dead weights of progress, and the influence of all such is thrown upon the side of popularizing a shallow empiricism.

An endeavor to get at the primary cause of the low estimate in which we are held by the public, no higher with the majority than quacks,—and below them in the estimation of many, will I think carry to the opinion that it lies in the unlimited publicity which is given to every fresh discovery, and to every new remedial measure. An immediate effect of this, is to disassociate the honor from any class and to put them into the hands of cunning empirics who speak of them with glib familiarity, as if such discoveries were the result of their own labors. In this way a false impression is made on the popular mind, most unjust to regular physicians, besides rendering new remedies subject to serious abuse and furnishing opportunity for the creation of ignorant prejudices. Even the laity take up with each new remedy, soon deeming themselves quite as competent to use it as the discoverers. Here a little knowledge is a dangerous thing.

New remedies are no sooner introduced, than, as in the examples of chloroform and chloral hydrate their employment by the populace is subject to serious abuse. Laws have been enacted to check the evil, prohibiting the sale of dangerous drugs except on a physicians prescription. But they are nearly always dead-letters. Not only this but many druggists getting a slight clue to remedies for disease actually prescribe for quite as many persons as some physicians; and on what degree of knowledge? Simply on a guess that a person's symptoms are similar to some other ones in which a remedy had been used successfully. Clues like this, constitute also, the *fons et origo* of patent nostrums. The druggist finding by a physicians prescriptions that some one acts extremely well in some disorder, straitway puts it up as his discovery, disguising it by flaming, coloring and a sounding title, and at once proclaims it as a remedy for nearly all the ills to which flesh is heir.

After years of application and patient investigation to find ourselves on the same level or actually below it in popular estimation with such thieving quackery is not only extremely humiliating, but it tends to foster the belief that some humbuggery in the practice of medicine is necessary and even more successful than merit. The frequent repetition from daily observation of such impressions upon the mind, undoubtedly tends to lower the animus of the physicians aims, to lead him to scout the necessity of diligence and thoroughness in knowledge as the main avenue to success, and of openly avowing that some humbuggery is absolutely required if we would hold our own in popularity, and make a financial success of our avocation. Even students of medicine do not escape the baleful influence of the observation, how well quackery succeeds. The free way with which our remedies are made familiar to the popular mind has another disadvantage worthy of mention. It deprives us of what has been termed the psychological influence of remedial agents. Let the sick take a medicine with which they are familiar, and the therapeutical influence of the imagination, or of a high mental expectancy as to its mystic virtues, does not aid in the removal of the disease. Some awe, emotion and mystery concerning a medicine are unquestionably helps to the restoration of health. It is thus, that ignorant and obscure charlatans have frequently succeeded in overcoming disorders after physicians of high attainments had failed.

It is easy enough to enumerate the obstacles and discouragements which environ us as a profession—but what to say or do for their mitigation or removal; something that will be practicable and efficient, is most difficult. The subject has been anxiously discussed in our medical journals, societies and associations but with unsatisfactory and dissonant results. One medical college after another animated by the laudable purpose of improving our *status* as a profession have determined that the best way of its accomplishment is to elevate the standard and requirements of admission into its ranks. But it is difficult to see how the consciousness of superior knowledge will improve our relations with the public. The latter as a rule, are wholly incapable of distinguishing between the most profound, and the most superficial attainments. As the curative art at present appears to the popular eye, there is no test, no mark of superiority that readily and unmistakably distinguishes the regular school from any other, unless it be in the query, are you a calomel doctor? The cunning and misrepresentation of empirics are competent to prejudice and vitiate the judgment on the subject to an incurable degree. We all know that we are often blamed when really entitled to great praise, and praised for skill when really entitled to censure for our mistakes. Besides it is a specialty of the followers of the empirical art, always to bestow high sounding titles to the little disorders they manage, so that in the outcome they have the name and credit for curing far more of the very worst diseases than the most accomplished and conscientious scientist. The people cannot detect the deceit, and when a competent physician attempts its exposure, ten to one he will not be credited with speaking truthfully but only in his own interests. Oh, say they, you doctors are always running each other down! If we wait in the hope of overcoming the evil tactics of empirics and the incompetency of the public to judge aright of medical qualifications simply until we know more ourselves, we will wait and watch until doomsday.

The mitigation or removal of our gievances cannot be accomplished by meeting in conventions to draft and adopt resolutions. The faintest ripple of their influence does not permeate into any department of extrinsic social life; they possess for the great public about as much interest and influence as the acts of a Chinese mandarin. If our relations to empiricism and to the public are in many respects unsatisfactory, they are to be bettered, if at all, by a new adjustment of the relations of individual members of the profession at the points of contact with empiricism and with the public. If our *status* is not what it should be, and mainly on account of the impracticability in the existing modes of enlightenment, of opening the popular mind to the truth, we should adapt ourselves to the exigency. Perhaps this adaptation may not attain to an ideal moral standard. But the fault in this does not necessarily attach to the adaptor. It is often claimed that what is highest and best ought to be preserved absolutely, not relatively; but absoluteness of end, involves absoluteness of means, which I think none will aver pertains to the enforcement of anything like a just conception and maintenance of our claims as the genuine promoters and representatives of the healing art. To promote this, and to infuse the spirit of greater ardor and progress into our ranks, I would propose in lieu of a loosely formed society like this, the organization of a physicians guild! in outline as follows: Six or more regularly educated and reputable physicians to unite and meet for private consultation at least once a month for the following objects; the advancement of the various departments of the healing art, obligatory and unreserved communication to each other of every discovery and improvement in therapeutical resources, and the protection of our claims as the only representatives of science and progress in medicine.

You may think this in no respect different from what we already have, but it is, and radically so unless you have caught the full import intended to be conveyed by the phase "private consultation." By this is meant that all the discoveries, all the improvements which we as diligent students of medicine may make must be kept alone for the eye and ear of the guild; in other words, the class who make the discoveries and improvements in medicine, are the only ones competent and rightfully entitled to use them and so reap reputation, honor and profit of their labors. To carry this out in detail, would I am aware be a decided revolution, and by some may be considered impracticable.

Let us see how the plan would work in detail. Monthly meetings would be held to communicate with each other as to the best modes of managing disease drawn from the school of observation. There is scarcely a physician of large experience who has not found some special mode of treatment for some disease unusually successful—a mode not to be found in any standard. The ripe experience of one in obstetrics, of another in diagnosis, of another in pathology, of another in therapeutical procedures etc. etc., is, let us suppose, laid before a local guild for verification. If found of advantage and an improvement upon the methods already known, to be put in print and sent as the voice of one guild to the others. All such communications, of course, to be reciprocal. There is a good reason to believe that many very valuable modes of treating diseases often die with their originators, sometimes from modesty in the discoverer, or the lack of practice in presenting clearly to the minds of others a new plan of treatment; and oftentimes from reluctance to make public certain points of practice, which would deprive the publisher of a practical vantage ground over the quacks by which he is surrounded. For one, I may say that there is scarcely a disease in which I prescribe according to the text-books, or a single affection in which my plan of treatment has not undergone important modification. Those as long in practice no doubt can say the same thing. And now, should this special knowledge or expertness in the management of some diseases die with us? Should it not be well to make it the property of a guild—all being mutual contributors, and so build up a structure of progress in knowledge *out of the most select materials?* In this way, the guild would soon become exceedingly rich in new and more successful methods, imparting to its members and *eclat* for exclusive and therefore distinctive wisdom and success in the management of disease. The empirical harpies who thrive on the discoveries of others, no longer having access to the writings and practices of medical leaders, would be thrown upon their own barren resources, precisely where they ought to be.—to enable the public to form a just estimate of their merits.

An organization like this would form an excellent school for the young as well as the more mature practitioner. From time to time the most advanced methods of dealing with disease would be brought before the mind, and under a form which would give them a consideration not hitherto accorded. With such an extensive and private source for accumulating new and verified remedies and methods of treatment, the fellows could go on from one stage of progress to another, until in skill and fertility of resources they would so distance those not of the order that the most illiterate could not fail to perceive and acknowledge their exceptional learning and success in the management of disease. All their discoveries, all their improvements being known and used by them alone, would soon tend to form an easily discerned and distinctive mark of superiority *which would without words or effort, and in the mere application established itself* in the minds of every observing person. In a test of the kind there could be no mistake, and all questions of rivalship in the minds of the people as to who are in the foreground of progress would cease, as all would see the empty pretentions of irregular medicine precisely as we see them. A broad and practical line of distinction would thus be drawn between scientific men and impirics, one amounting to infinitely more than a mere name which is about all that very many suppose constitutes the chief difference between the followers of the so-called old and new schools of medicine.

Those members of the guild not especially gifted as contributors to the common fund might be of some use as critics, Incapable of adding to the general stock they might now and then detect a weak point in the statements of others. But much of this kind of talent is far from desirable. The minds of such persons are always in the shadow of doubt, they have no eye for beauty, only for defects, deformity and death, no admiration, or love of truth and progress Their barren minds refer to the productivity of others, much as an old maid refers to the fecund wife with the spirit of detraction, racking the wits to raise prognostication of possible evils. No society is the richer and rarely any the better for what they accomplish. They do not assist any one to a greater mastery over disease, but on the contrary often do great harm by their attempts to display subtility,—confusing knowledge and throwing the shadow of doubt by never ending quibbles over what is almost axiomatic in medical science. Obviously, an organization like the one proposed should not seek shelter and countenance such dead weights, men who are secretly absorbing, or in other words have a strong endosmosis but not the slightest exosmosis of information after even the tightest squeeze.

By having a new remedy or plan of treating disease verified and endorsed by each guild before communicating to others, an immense boon would be conferred on those endeavoring to thread the labyrinths of medical progress. As medical journalism is at present conducted, it is confusion worse confounded. The most diverse views of the nature and treatment of disease are presented, each apparently about equally well authenticated, and all claiming exceptional success, until one is almost led to exclaim that the whole matter is a humbug or a delusion. If each modification or new plan of treatment were first subjected to a crucial test by the guild to which it is first communicated, and if confirmed then ordered as a communication to the others, far, far more dependance would be placed upon its value than upon those published after the system now in vogue. Progress under such a plan could not fail to be rapid, sure and steadfast—the type of a prevailing malady would be far more accurately determined and always considered in the results, errors in diagnosis corrected, and more than all, mistakes from lack of attention to *post hoc, ergo proctor hoc*, will be largely obviated.

In addition to the great gain to medical culture by such an organization would be the creation of a distinctive order of physicians whose standing and reputation would be absolutely in their own hands. Colleges might turn out every year regiments of incompetent doctors, who if found unworthy, would be refused admittance or recognition by the guild. Under such circumstances their college titles would avail them little. The thousand or two turned loose each year upon the public by the dogmatic schools, and who flaunt a *Medicine Doctoris* in our faces, in effect declaring I am all that thou art and a little more, would find a gateway to honor and to knowledge in their pathway, which if not opened would place upon them for life the stamp of unworthiness, of illegitimacy and of a low standing as scientists.

It does not seem possible for the medical profession to carry out effectual self-protection except by the organization of a medical order like this, around which should gather high reputation, advanced culture, profound learning and exceptional skill. This order must be placed at an altitude unapproachable to all others. The public would then cease to think one kind of doctor about as good as another, or in fact, those the best of any who boast the longest and loudest. How can such an altitude be made clearly obvious to the popular eye? Simply and plainly by *making discoveries and their discoverers one;* in other words by confining the applications of discoveries to the class who made them. The representations of sectarian methods practiced by their superiors and so be compelled to own their ignorance, besides being cut off from the means which a smattering knowledge confers of misrepresenting and creating popular prejudices against whatever happens to conflict with the welfare of the sect. We all know that the dogmatic schools have not made a single great discovery, a single great improvement in any of the departments of medicine, but depend upon the investigations of regular physicians, and then hold them up to the derision of the public as a set of fogies, away in the background of scientific progress. That is the opinion of a large, if not the largest number of those considered the most intelligent in every community, as any one can readily ascertain by a little careful inquiry. And, is it not most humiliating, most unjust when *all* the credit for progress is upon our side? Would there have been any doubt upon this head, if all the discoveries and improvements that have been made in the last half century, and that are the glory of regular medicine, had been jealously held and used as the exclusive property of the class who made them. The public would then have known beyond all doubt or question who are the real promoters of scientific advancement, as all those not of them, would be in such deep ignorance of late improvements that all would be enabled to see the sects in medicine as we see them.

We pride ourselves in being a liberal profession, but we have overdone liberality, so much so as to have seriously impaired our usefulness, and placed ourselves in an unjust and humiliating attitude before the public—one in which, except to a very few, are we at all distinguishable from the horde of empirics by which we are surrounded. Consider for instance, the tone of the newspapers--that great modern moulder of public opinion toward the various pathies of medicine,—and it is too plainly evident that the number who exhibit any discernment, or special regard for the regular or scientific school is very small; a surprisingly large percentage of them openly declaring that we are slavishly bound to old time methods, or in other words, that we are respectable but conservative fogies. There is not one of the rural yet numerous and influential newspapers that does not puff some charlatan almost every week as if he were among the great if not the greatest of physicians, on whom the sick may confidently rely for restoration to health. To read these day after day, occasionally interlarded with the favorite theme of the presiding officers of medical societies, to wit : a toploftical dissertation on the fame and dignity of the medical profession, is enough to bring a sickly smile to any one's face. For the thoughtful and studious physician to be placed by any one, not to mention the great moulders of public opinion, on the same level with charlatans is sufficiently humiliating, but to be rated far below them is to create an intense disgust toward the whole vocation. In truth all this is simply intolerable considering the facts. Who discovered the circulation of the blood; brought forward vaccination as a safeguard against small-pox ? who was the means of preventing scurvy by which the lives of tens of thousands of seamen are annually saved ; who discovered chloroform, invented the laryngoscope, the ophthalmoscope, the aspirator, hypodermic syringe, the Esmarch bandage, the plaster jacket, and many other improvements of intense import to suffering humanity ? Why of course there is but one answer, the members of the regular school. To show what progress has been made by them alone, take a single illustration. Only a little more than two centuries ago, when any one met with an accident which rendered amputation necessary, the trembling victim was tied to an operating table while the knife and saw did their work. The bleeding vessels were not ligated as now, but the raw stump was seared with red-hot iron, or dipped in hot-pitch to stop the bleeding. The mortality as near as can be ascertained was about 75 per cent. Now, when such a misfortune befalls any one he is thrown into a sweet sleep only to awake after the offending member has been painlessly removed and the stump nicely dressed. The mortality is exactly reversed, or about 25 per cent. To whom is the credit due for this wonderful change? There is but the one, same old answer—the regular school. Yet forsooth we are supposed by large numbers of lay persons of high standing to be the retarders instead of being, as we are the only promotors of medical advancement. Had all the discoveries and improvements been kept as the property of those who made them, such a supposition would not have been possible, as the difference between regular physicians and empirics would have been so wide and distinctive as to leave the latter in absolute obscurity. But, says one:

why not enlighten the people on these topics, so that they may be enabled to form a juster estimate of regular physicians? It is not practicable or creditable for the latter to imitate the arts of quacks by publicly boasting of what they have done and can do, or to put any question of superiority or precedence into all the uncertainties, humiliations and aggravations of dispute, or to waste their time in proselytizing when their spare hours can be turned to far better account. The matter can be much more easily and decisively settled by the arrangement proposed, of a new organization. Those the richest in progress will soon move to a higher and nobler plane of excellence, while those poor or barren in scientific discoveries will be left far, far below. There would then be no question who were the true friends of progress and of humanity; no question who far outranked all others in learning and skill.

To secure these ends it is only necessary that regular physicians all over this land should organize themselves for mutual culture and private intercommunication. In lieu of multitudinous journals filled with crude and contradictory statements—sometimes designed far more to gratify personal ambition than scientific growth, there would be an official journal in each state to record the announcements of the discoveries and improvements that have been made and verified by one guild to another, and this being their exclusive property the knowledge would be a sealed book to all not of the order. To carry out these objects fully, a return to the old-time custom of physicians dispensing their own medicines either by trained assistants, or by students as a school for their practical training would have to be adopted. Retail drug houses by the way are the great nurseries of quackery, besides affecting the interests of physicians in other ways most unjust and unfair. For example a fifty-cent prescription is given,—the druggist files it away often giving a duplicate to the patient who not only uses it himself for a dozen of years or so, but hands it around to his friends, The only one who derives anything like an adequate profit for the benefit conferred is the druggist. He clears on the prescription some 15 or 20 dollars to the physician's 50 cents. Nor is this all, the druggist finding from the talk of his customers, what good service the compound has done, issues it as a prescription of his own to others. Again and again have I known numbered bottles representing a ℞ for a disease doing duty in more than one family. Little wonder under such a system that drug houses multiply and do a thriving business. Each one usurps a business of hundreds of dollars annually that ought in justice and right to go into the hands of physicians. After years of patient trial and observation I have arrived at the knowledge of a compound very efficacious in that ubiquitous disease nasal catarrh. I do not give prescriptions to my patients for it—for the simple reason that if I did, the druggist would soon take all the business out of my hands; a consummation not wholly nor devoutly desirable. Some conveniences, it is true, would be sacrificed by the change proposed, but the counterbalancing advantages would be ample, and the plan far safer and more acceptable so far as the public are concerned.

But some may think, there are our text books of practice open for any one to read and learn. Well, let those who choose avail themselves of what they contain. For one I have such faith in the progress of medicine, that in a few years all books of the kind would be, therapeutically, well nigh obselete. Especially, would this be the case if all the best physicians of our country were united together for the facilitation of intercommunication as to every discovery and improvement. By making the requirement obligatory on each fellow of the order to communicate anything of value that comes under his observation, an *immense collection of the most select medical knowledge, of methods verified by several observers as yielding exceptionally good results, would soon be in the hands of all the fellows of the order. This would quickly put in the hands of all, the best methods of each,* and so render advancement in knowledge and skill unprecedentedly rapid.

The advantages of an organization such as I propose, over those now in existence, may be summed as follows: a stronger consciousness of unity in aims and interests. Like a close coöperative body, its wealth of knowledge and improved methods would depend upon individual contributions, and the richer it became in these, the higher would it rise in exclusive skill, and the more distinctive would it become in public estimation. The pride and interest of each would be so identified with the organic union as to lead all to strive earnestly to collect a large fund of select knowledge for the common, but exclusive use of its members. It would carry into immediate effect efficient self-protection, not only as against integral professional deterioration, but as against the assumptions of empirics. A barrier would be erected, absolutely under the control of the profession, truly republican in form—in every city, county and township of the land, which would in effect say to the unworthy, this far and no farther. The attitude toward empiricism would be a strong and the only true one for the overthrow of this gigantic evil, not of an offensive, but a defensive character. By the simple identification of all the discoveries and improvements in medicine in the popular mind with regular physicians a silent, but most effectual warfare would be kept up against empiricism, which would provoke no controversy or sympathy in in its behalf. The shallow emptiness of its pretensions thus silently revealed, it could not fail to languish and be consigned to the obscurity it so richly deserves.

Fellowship in such an order could not fail to be highly prized, as it would be the "*open sesame*" to the most recent discoveries and improvements in medicine, besides conferring identification with the class that the public would soon learn are the only ones entitled to high regard and who make and possess superior instrumentalities for the alleviation and cure of disease. Membership and good standing could not fail. under such inducements, to be eagerly sought, and those who from an inordinate self-sufficiency, imagined that they could dispense with its advantages would soon find themselves lagging far to the rear of the grand march forward. Very quickly would all such realize that they were, not of, but to the outside of the great medical world. Remedies and plans of treatment would soon be in the hands of those of the order, to the outsider, strange and unknown. Not to be a member, would be equivalent to professional ostracism. Under such inducements honorable conduct and observance of medical ethics among the order could be enforced as never before. It would go far to unite the fellows as a band of brothers, and tend to transfer the disposition to war against each other, to a war against empiricism in every form.

Investigations and contributions to improvement would be stimulated as never before, each member feeling that now regular medicine has an available way of proving its superiority to every mind, not by windy words, but by discoveries and deeds of exclusive skill. All the improvements and advances of the future would be made as in the past by the regular school, and if they were known and used by it alone the better methods and their originators would become so thoroughly identified in the public mind, that no longer would there be any question who are the real promoters of medical science and the benefactors of their race.

Art. 5.—Plaster of Paris in the Treatment of Surgical Injuries.

By CHAS. FAIRCHILD, M. D., Cincinnati, O.

A Paper read before the Alumni Association of The Miami Medical College, Sept. 14, 1877.

Some form of plastic apparatus in the treatment of surgical injuries dates from a period too remote to be fixed with exactness. The originator of the idea I believe is unknown. Like most all other valuable inventions, there seems to have been a time when it was forgotten. Its reviver was Baron Larry, who gave it a definite place in science.

Plaster of Paris, which is at the present more uniformly used, began to assert its supremacy in 1852. The readiness with which this material hardens, renders it particularly servicable in the hands of the surgeon in the treatment of fractures. It is, however, used in a variety of surgical diseases, and is now being highly advocated in the treatment of Pott's disease of the spine by some of our leading surgeons, taking the place of a variety of supports, which have been devised for the treatment of that disease, and I think in a great measure replacing the old-time fashion of using wooden splints in fractures. It, like all other forms of treatment, has its advocates and those who are opposed to it. My experience has led me to think favorably of it, especially in the treatment of fractures, both simple and compound.

I only wish to point out what I believe to be the advantages of this form of treatment and which I find is endorsed by an article written by St. John, of New York, who gives statistics of 142 cases of simple fractures, 50 of the femur and 26 cases of compound fractures treated with the gypsum apparatus, which compare well with all other forms of treatment and in many instances superior to other forms of treatment, the average duration of the time of union being less and the average of shortening less.

It is not my object to give the different methods of its application; almost every surgeon adapts it to his particular notion, affording quite a variety of methods. The method I have adopted has been that which I think is most universally used—the rolled bandage of some loose texture, with the plaster incorporated in its meshes; after being saturated in warm water, apply the same as a dry bandage, protecting the part or limb by a flannel bandage, or some closely fitting woolen dressing.

Its application is a matter of extreme importance and upon which a successful result depends. Imparable injury may result from an improper knowledge of making the application, and the apparatus is condemned when the fault is altogether due to the unskillful manner in which it has been applied.

Dr. Sayer, of New York, who has devised an apparatus for the application of this dressing in Pott's disease of the spine, attributes largely his success to his method of making the proper extension and support until the dressing becomes sufficiently hard to maintain the position required.

The objections to the use of this dressing are not more than other forms of treatment offer. The principle ones are constriction of the circulation, concealing the parts from view, liability of displacements of the fragments, when swelling subsides, softening of the apparatus if met with urine, œdema through traps left for dressing wounds, etc., all of which can be readily met by a careful and judicious surgeon. The main one of these objections, the constriction of the circulation, and its attending dangers, which every surgeon that applies a bandage is liable to make at some time, calls for strict attention, and upon the first indication of its occurrence the bandage should be cut longitudinally—which gives free opportunity for inspecting the limb and of course relieves the constriction. When the swelling has subsided this case is met by cutting the the splint so that it is made to fit the limb accurately—softening by protecting the splint with oil-silk, varnish, etc. Cutting the splint will also relieve the œdema through traps made for the treatment of wounds.

Its advantages to which I wish to call your attention, are the rapidity with which the material hardens, maintaining in position what the surgeon can hold for a few minutes; wide range of application, lightness, porocity, simplicity of material, cheapness, etc.; perfect coaptation to irregularities of the limb, preventing displacement and not requiring removal for weeks at a time; maintaining the fragments accurately in position and preventing them from lacerating the soft tissues; allowing the patient in a few hours or two or three days to go on crutches or otherwise, avoiding all the inconveniences of remaining in bed, bed sores, etc.; produces uniform compression, giving such support that nature is relieved from throwing out such an abundance of provisional calus; relieving muscular spasm, one of the causes of displacements; prevents and diminishes swelling; bony prominences are free from injurious pressure by the cutting of traps, have free access to the treatment of wounds in compound fracture, can be applied immediately or at any time the surgeon thinks proper—in cases of fracture complicated with dislocation it is often possible after dressing the fracture by this method to reduce the dislocation, which otherwise would be difficult or impossible to overcome, is less trouble to the surgeon which is plainly indicated.

A number of minor surgical diseases have been treated by this method and met with signal benefit, but not more than other forms of treatment have met with—sub-acute and chronic swellings of joints, talepes, etc.

Art. 6.—The Clinical Ditty of Fair Clarabel.

(Related in dislocated rhyme).

A rich old merchant in the whisky trade,
Residing in a certain Western city,
Fathered an only child, a charming maid,
Aged just eighteen, and counted on as pretty.
Her eyes were brighter than the stars of night,
Her cheeks were redder than the rose of June,
Her figure round and plump, her footstep light,
Her voice so birdlike, never out of tune.

As Clarabel had just left boarding school,
It may be mentioned with all due propriety
That her fond father, dear old doting fool,
Insisted that his pet should try *society.*
So what with theatre, ball, and opera,
Our heroine put a whole long winter in,
And, on the following spring, her good papa
Noticed his daughter growing pale and thin.

Spiritus, on seeing such forbóding signs
As hectic flush and cough so phthisical,
With gaunt emaciations horrid lines
Wasting his daughters rounded beauty physical,
Resolved to have her little lungs percussed
By some physician of well known capacity;
Knowing at home the fact would be discussed,
He took her East; thus showing rare sagacity.

In Philadelphia's precincts settling down
They put up at a fashionable hotel,
And Clarabel's papa hurried up town
In search of Dr. X., a well-known *swell.*
X., duly came, percussed and auscultated
And then, with all professional gravity,
In a few words his diagnosis stated
"Her right lung gone, the left one has a cavity."

"Heavens!" cried Spiritus, "can this be true?"
"Yes," growled the doctor, "take her to Cape May
And let her bathe in ocean waters blue.
Give her Cod-Liver oil three times a day.
I do not think she'll last until next fall.
The treatment I've prescribed will suit her best."
He donned his hat, finished his call.
Sticking the twenty dollars in his vest.

Straight for the seaside Spiritus departed,
Acting upon great Dr. X's., advice.
Once at Cape May, our heroine was light-hearted
Declaring it was "jolly—awful nice.

She would not bathe or take her liver oil,
But danced and flirted all the summer through,
Becoming thinner from this kind of toil
While her complexion had a waxy hue.

A certain specialist from New York City
Stopped at the Cape just by mere accident.
Seeing the girl, his heart was filled with pity,
And forthwith at good Spiritus he went.
He introduced himself as a physician
Known from Atlantic to Pacific's border.
He said he noticed Clarabels condition
And thought she had some feminine disorder.

"My daughter's lungs," are gone, "I sadly fear
I'll soon consign her to the cold, dark, tomb,
Said Spiritus, checking a rising tear.
"Bosh!" cried the doctor," its your daughter's womb"
Her lungs are sound, her cough is sympathetic.
Depending on the spinal nerve accessory
I'll place the girl under anæsthetic,
And introduce my patent rubber pessary.

Sweet Clarabel submitted with ill grace,
And for three days the gutta-percha carried.
She thought the instrument quite out of place,
And wondered what she'd do, if she was married.
Old Spiritus paid a hundred dollar fee
Sending it on to New York in a letter.
The pessary was tossed into the sea
By Clarabel, who, after that, felt better.

Time sped and Autumn came at last.
The sun was hidden in a golden haze.
At night the misty clouds the sky o'er cast
And cheerful was the fires ruddy blaze.
The crowd thinned out, yet still a few
Lingered beside the ocean's rolling billows
And danced each night until the hour of two,
Then sought repose upon soft downy pillows.

Sweet Clarabel grew thinner, weaker, paler,
Her cough had ceased—she tried to force it,
High was her cheek bone, let us say her malar,
And e'en the ribs projected, from her corset.
Old Spiritus, worn out and broken hearted,
Thought o'er the matter, counting all the cost in
And on one bright September morning started
Along with Clarabel for far off Boston.

He called in Z., of Harvards famous college,
A learned, and an eminent physician,
Who put forth all his diagnostic knowledge;
Displaying all his well-known erudition.
"Its evident," said Z., that your dear daughter
Is laboring under chronic Brights disease,
Look at this specimen of her virgin water,
Notice its cloudy aspect, if you please.

The Doctor then laid down some rules for diet,
Prescribed a medicine to take by mouth.
Told Spiritus to keep his daughter quiet
For a few days, then move her farther south.
He said, "she will not live the winter through,
The case has passed beyond my skill."
Then terminated the little interview
By carrying off a fifty dollar bill.

Now Spiritus, o'er come with dreadful sorrow,
Mopping his weeping eyes with a bandanna,
Cried, "Clarabel, we'll start for home to-morrow,
If die you must, why, die in Indiana.
Home, of thy happy childhoods sunny days!
Spot, where I earned my first ten dollar note!
Land of corn-whisky and malarial haze!
Dear quinine haunted, lovely Terra Haute!"

Shortly, the couple reached their journeys end,
Down on the Wabash in old Vigo county,
Where Spiritus called in a doctor friend
Who had lang syne partaken of his bounty.

For forty years had old Bluepille been striving.
To minister to Indiana's ills.
All day and night over the country driving
Helping in babies; fighting off the chills.

Old Bluepille scanned sweet Clarabels pale face,
And asked the child about a hundred questions.
He noted down the symptoms of her case
And also made some sensible suggestions.
"You must not dance," he said, in accents tender,
"You need rest, and some bitter iron wine.
Tight-lacings made your waist too slender,
But first of all, I'll give you *turpentine*."

"I think those Eastern doctors are mistaken
Fain would I speak in profane terms,
Just wait until my medicine is taken
And then you'l see my diagnosis—*worms!*"
Within a few days Bluepille had a call,
From Clarabel, who entered, smiling sweet.
She held a bottled tape-worm, head and all,
A horrid varmint, measuring thirty feet.

Sweet Clarabel is now plump, fair, divine,
Her beauty's taken on its pristine glory,
Her lungs and kidneys, organs uterine,
Are all right now—here ends our story,
The moral of this tale is seen,
Without intent to give offense,
All country doctors are not green;
And some great men lack common sense.

⁂

Selections.

An Address delivered before the Trigg County Medical Society.

BY J. W. SINGLETON, M. D., PADUKAH, KY.

The following address was delivered before the Trigg County Medical Society May 8, 1876, by J. W. Singleton, M. D., of Paducah, Ky.:

Mr. President and Gentlemen.—I have long entertained the opinion that very much of the popular deception and imposition commonly associated with the "practice" of medicine, has resulted from public ignorance on one side and professional exclusiveness on the other; and that in proportion as enlightened and liberal-minded men correct popular errors and instruct the general intelligence on important medical questions, we shall hasten the advent of the time when men and women will be able to discriminate between rational science and base quackery; between the counterfeit in all things that relate to the relief and prevention of disease, and to the promotion of the general welfare. We, therefore, believe that the votaries of medical art have a mission to perform in this world higher than the simple act of administering remedies for the cure of the ills incident to human flesh and blood, and that the great public should be duly and truly prepared to understand what that mission is, and be ready to appreciate it at all times and under all circumstances.

While it is highly improbable, or at least hardly to be expected, that non-professional minds should properly comprehend the profound mysteries of medical science and "the gift of healing," nevertheless, a decent respect for the opinions of society demands that, to a reasonable extent, we should be cheerfully willing to teach our fellow-citizens how to take care of themselves and their dependents, and thus demonstrate the universal principles of philanthropy and benevolence which should ever distinguish our profession. We should teach mankind who are the devoted servants of truth and honesty, in remedial affairs. We should warn them against impostors and poisons. We must hold up to them mirrors of Nature, of Science, and of Art, that they may not reject the virtuous teachings of the crowned heads of medicine deduced from the practical application of discoveries which are designed, in the Providence of God, to confer inestimable blessings upon the sons of men.

The mission of medical science is to succor, relieve and save our fellow-creatures. The mission of medical science is one of joy and comfort to the human race. The mission of medical science is that of fraternal relief, brotherly sympathy, and world-wide charity. Laying its sure foundations broad and deep in the divine philosophy of relief for sinful and fallen man, its precious gifts have been consecrated in the smiles and tears of centuries. Medicine comes to us on the first centennial of our country's birth, fresh and full, blooming and joyous, clothed with the glories of the past, adorned with the triumphs of to-day, hale and vigorous, and habilitated for new and more glorious victories in the great battle against disease and death.

If medical science has a mission to perform, and that mission is but half performed, it must have its devoted ministers to complete the grand and holy work. It must have its single-hearted and self-sacrificing servants, who, fully imbued with its benificent intentions, will consecrate their best powers of mind and body to accomplish for it that magnificent destiny which it is steadily approaching. All over the world the heads and hearts of the profession are meeting and conspiring together to this grand purpose. From the banks of the Danube and the Rhine, from classic Scotland, from the land of Emmet and O'Connell, from our ancient mother country, and from beautiful France, the message comes that our brethren of medicine have united in one firm and earnest medical brotherhood, and are moving in solid column for the elevation of medical science and character as a priceless blessing to mankind. It may be that not one-half of their sanguine hopes and fond expectations will be realized in the relief of the pains and sufferings of their fellow-men. It may be that the united intelligence of the whole medical world will not succeed in arresting half of the contagious and infectious diseases which now afflict the human family. It may be that their precious counsels will be disregarded by peoples, states and nations, and the excellent fruits of their labors be left to rot in the midst of the ignorance of the poor, and the selfish indifference of the rich for a time. Be it so. But the day will come when the sage advices and solemn warnings of men of science and lovers of mankind shall be heeded, and society will be moved and controlled in all matters concerning the prevention of disease, upon soundly deduced medical opinion, in the preservation of the public health and in the increased average duration of human life.

One of the chief missions of medical science is the essential institution and observance of correct principles of universal hygiene; the great secret of future protection from devastating pestilence and of the promised health and vigor of the earth's busy millions.

With all of our boasted success in the cure of disease, we are yet in the infancy of sanitary art. Perhaps there will yet be discovered an antidote for every poison and pain which now produce sickness and death. It may be that the seeds of disease shall yet, by the conservative influence of preventive means promptly applied, be blasted and utterly destroyed before the direful work of vital suffering, and destruction is fairly commenced. Who knows, and who can foretell the degree of preventive and remedial perfection to which our art may attain? It may happen in the course of discovery that the seeds of such merciless diseases as cancer and consumption may be completely destroyed and be made to lose their destructive power. These and other blessings must be accomplished in the annals of medicine for the good of our fellowmen, before the followers of medicine can rest from their labors.

In the great work of universal sanitation and in the physical and moral reformation of mankind, we must commence within the sacred precincts of that hallowed ground upon which a man "leaves father and mother and cleaves unto his wife, and they twain become one flesh." Through wise counsels to wise legislators in the medical, moral and legal protection of the institution of marriage, a new race shall people this earth, perfect in physical, mental and moral structure, and as pure in blood as when man sprang to being on the sixth day of the creation, when God Almighty breathed into the nostrils of his master-piece and "man became a living soul." In the purification of the human race it may become necessary to separate the clean from "the unclean" with the strong arm of the law, on principles of science and humanity. The increasing deterioration of the human species may imperatively demand the segregation of "the leprous" from those whose blood has not presented any evidences of infectious contamination. The greatest good to the greatest number may require that seemingly harsh measures shall be applied to the unhappy and unfortunate few. But it is better for the health, comfort and happiness of men that thousands be sacrificed to the penalty of separation from the sound and healthy, rather than the blood of whole generations should be filled with rankling poison and death-dealing hereditary infection. And it may come to pass that even in this Christian age, an age remarkable for its splendid charities and generous benefactions, men of science

"Must be cruel only to be kind,
Or bad begins and worse remains behind."

The policy of separating, as far as practicable, the pure from the impure, "the leprous" from the sound, the consumptive from the healthy, the cancerous from the non-cancerous, the drunken from the sober, those who lead regular and exemplary lives, according to the laws of nature and of God, from all who walk and live unseemly, may at first glance prove a task strange, cruel and difficult; but when we reflect that a "little leaven leaveneth the whole lump," and that streams of poison flow from father to daughter, from mother to son, and alas! too often in scenes of connubial association from husband to wife, and from wife to husband, entailing incurable maladies upon the innocent, it is time that the friends of humanity should warn mankind that the sins of the fathers are being visited upon hecatombs of men and women, whose life-spring, poisoned at its source, flows forever onward in hopeless misery and tears!

One of the most melancholy instances of the necessity of the separation and seclusion of thousands of our fellow-beings, who have become polluted with a loathsome and incurable disease from the ranks of the sound and healthy, is to be found in the island of Molokai. There is a smiling group of lovely islands in the South Pacific Ocean, where the sun ever beams brightly, and whose gentle sea breezes are ladened with the fragrant perfume of perennial flowers and luscious fruits. The nutritious bread-fruit, the cocoa. the date, the banana, and the pine-apple, furnish luxurious sustenance for the inhabitants of that bright spot, to live without labor as they drink the coolest and purest water that gushes from the mountain side to refresh, invigorate and beautify the plain below. That land far away, as an oasis in the desert of a trickless sea. seems to be an earthly Paradise. But in its sad history we find that appearances are deceitful, and we sadly realize that it is a country in which "every prospect pleases, and only man is vile." The beauty and glory of that diamond-lit and blossom-clad gem in the midst of the great water is blighted by a curse; a curse not from Heaven—no, God forbid—but a man's own begetting. Buried in filth and disease; living in indolence and immorality, disregarding the warning counsels of the pious missionaries, who half a century ago tried to teach the besotted encumberers of that smiling land how to live. and by holy example lead the way to morality and religion and to life eternal; these poor, benighted creatures set at naught the advice of their best friends, and to-day a large island of the Sandwich group, bound by high and rocky cliffs, and excluded from its sisters, is densely populated by condemned lepers, who are left with the leprous only as companions to suffer, to rot and die unfriended and without human sympathy. The unfortunate objects of Nature's wrath, as the consequence of man's wrong-doing, had the foundation of their ruin laid in the sins, excesses and crimes of their fathers, who lived in violation of the moral law, and left their miserable descendants to reap the whirlwind of physical, mental and moral disaster, which has already followed, and which will continue to the remotest generations of their posterity; until deprived of the privilege of propagating their kind, the remaining loathsome examples of ignorance and folly shall utterly perish in their own corruption, and even their remembrance shall fade forever from the haunts of men.

One of the highest and holiest duties of the scientific physician is to be instrumental in devising means to protect civilized society against its own excesses, that we may not have to repeat the sad history of Molokoi as the consequence of our own vice and shame.

Under the enlightened direction of scientists and humanitarians, courts and legislatures have been prompted to the adoption of measures calculated to save mankind from themselves. Marriages of kindred have been forbidden by the statutes of a hundred states and kingdoms. Diseased poverty has become the public charge. Criminal infection is meeting its just punishment at the command of a healthy public opinion. The progeny of the polluted and corrupt are meeting an early death. The race of moral and physical lepers is being exorcised from the ranks of the pure and the good. The world's great heart is moved to the grand and glorious work of human redemption. The tendency to physical and mental improvement is marked everywhere. Hygienic laws enacted by wise governments are sustained and enforced by the devotees of science. Yet we have but commenced the great and beneficent work soon to be nobly finished for man's deliverance. In its final consummation it may become necessary to apply the actual cautery, even to the domestic circle, for the salvation of the human race. If in the providence of God such a time should arrive, let the task be performed with mercy to the present, but with justice to the future inhabitants of this beautiful world. Let us fully realize the fact, that it is far better for mankind that thousands should suffer the ills and deprivations of separation from the healthy and the vigorous, than that millions should be blasted with the curse of poisonous infection or hereditary disease. He is noblest on the roll of honor who does the most to bless his fellow-creatures; he is worst who would knowingly and willingly be the instrument of transmitting a loathsome affection to the helpless innocents who may come after him to take his name and perpetuate his shame. There should be no pity for that man who, knowing that his blood is poisoned and his embrace a blight and a curse, will yet contend for the privilege of gratifying his desires at the cost of the suffering and misery of unborn generations. Society and the legislative authorities of the world should adopt measures to protect our posterity against these monsters in human shape, or mankind will yet become a reeking mass of hereditary disease and corruption, disgusting alike to the gods and to men!

Two of the most fruitful sources of disease and death are malarial exhalations and the poisonous effluvia of animal decay. The attention of men of science has long been directed to the importance of neutralizing these noxious elements, or of removing them, so that they can not exert their destructive power. For thousands of years his Majesty King Malaria has held sovereign sway over the fairest of countries. Where the roses perennial bloom; where the cypress and the pine mingle their tender foliage in fond dalliance beneath the warm rays of the tropical sun, and the spicy gales are wafted in loving melody through orange groves and bright magnolias, our insidious enemy, malaria, is ever ready to perform its deadly work. The most beautiful and the most fertile regions of the earth are cursed with this protean poison of suffering and destruction; but by a wonderful provision of Nature the bane and the antidote grow together upon the same sunny hillside, and imbide their nourishment from the maternal bosom of the same genial soil. "The author of every good and perfect gift" rears the lofty trunk and branches of the Peruvian tree, from whose wonderful virtues the great world's blessing, quinine, receives its origin and exercises its power.

And to-day, the conflict rages between the two mighty powers of disease and of remedy, wherever malaria is felt, and where the names of Powers and Weightman are familiar to medical men. To remove this potent cause of more than half of the diseases, incident at least to the western hemisphere, is the task of medical science in the future. If we know whence a poisonous principle emanates, and what are the circumstances necessary to the production of that disease-producing agent, why can we not, in some way or other, eventually discover and destroy that poison at its source, and thus protect peoples, states, and nations from its dread consequences? The votaries of medicine should never rest satisfied until the poisonous breath of the swamps and morasses can be rendered pure and healthful by human effort, and not until the merciless monster, malaria, is shorn of its consuming strength and made to bow in suppliant obedience to the commands of scientific men.

As fire is the greatest of all purifiers, may not the time soon come when mankind shall properly use this Promethean element for the purification of the air that we breathe from all pestiferous ingredients, and thus support, strengthen, and prolong man's life? Is it not highly probable that vast regions of country, now almost uninhabitable, can, and will, be made smiling centres of vegetable life, healthful beauty and robust longevity, by the proper and seasonable use of the torch and the furnace? Is it not possible that in process of time, very much, if not all, of the poisonous exhalations from the earth's surface and from dens of filth and putrefying animal and vegetable matter, may at once be burned up, and the rich solids and gases of which they are composed be at once permitted to return to their original elements without endangering the health, comfort, and safety of the living? Why should there not be a purifying furnace in every household, in every public place of resort, in every crowded factory, work-shop, school-house, etc., where all noxious excretions and offensive matter could be immediately decomposed and their fertilizing elements sent onward in Nature's germinating, budding, blooming, and fruitful round of reproduction? We can not destroy anything; but many things can destroy us. In simple elements we find the most safety to these mortal bodies. It is in the intentional or accidental combination of the simple elements that compounds are made destructive to health and life. To control the dangerous effect of matter in any condition is one of the chief duties of the man of science;

and when he accomplishes this purpose, he becomes a public benefactor.

There is scarcely known a poison more surely destructive to human life than the fermenting juices of the dead body of man, even under circumstances of death from an ordinary disease. But when we add to this the death-dealing germ of a terrible epidemic that lurks unseen in the clotted blood and decaying flesh of a fellow-being who has died of a wasting pestilence, how necessary it becomes when our loved ones are snatched away from us by the cruel monster, that their remains should be hidden away in deeply-dug graves or speedily made harmless ashes of our tender and affectionate memory. We have no moral right to peril the living with the putrefying bodies of our kindred and friends. As shocking as it may seem at first thought to our sensibilities, would it not be better for us and the world of mankind that the fertilizing ingredients of which man is composed, should, after death, be immediately set free through the agency of fire; and, having formed the strength and beauty of our humble or glorious life, enter the form of another maturing human existence? Let the carbon enter and build up the patriarchal oaks that shelter ancestral homes. Let the oxygen light up the cheerful hearthstone with its comforting flame, or mingling again with its loved associate—hydrogen—go to fill stream and streamlet, or refresh the earth with moisture, cause verdure to spring forth or tremble in the morning dew amid the fragrant petals of the rose. Let the phosphorescent fires that gave electrical vigor and animation to one man be freed in the separation, and be permitted to enter and quicken the cerebrum of another candidate for immortality. And thus we help to perfect the circle of Nature by speedy decomposition of the dead for the safety and regeneration of the living.

After all of the popular prejudice against cremation, it is not so horrible, when properly considered, as some sentimentalists regard it. It is one of the great questions of the future. Whatever may be the opinions and the *feelings* of the good and the tender-hearted on the subject now, men of science, even on this big continent, must teach the people its ultimate importance to the protection and well-being of the human family.

The efforts of scientific men to influence the enactment of sanitary laws throughout Christendom have accomplished comparative success, but a success not at all commensurate with the importance of the subjects therein embraced. The injunction of our Divine Master to "take no thought for your lives what ye shall eat and what ye shall drink," was a command to the inspired Apostles, and not to the victims of modern adulteration. When we know that the solids and fluids we use to nourish, build up, stimulate, and sustain us during our brief life career on earth are frequently poisoned with material destructive to health and life;

when we are assured that very often, through the selfish and brutish cupidity of drug-sellers and nostrum-venders, that which is used as a "remedy" for the relief of disease is a thousand times more dangerous than the disease itself, it is time that the laws of all lands, supported by a healthy and vigorous public opinion, should sustain the followers of medicine and the lovers of humanity in a combined and determined effort to rid society of the dread incubus of adulteration of the food which we eat and the medicine which we swallow to save us from starvation and death; adulteration, whose fell spirit with money for its god, human misery for its work, and hell for its final reward, cares not for the ruin and sorrow that follow in its train!

Humanitarians throughout the two continents have their minds thoroughly awakened on the great questions of sanitary, dietetic, and remedial purification. The day is not far distant when Boards of public health shall everywhere, be in active and earnest work to inspect our homes and closets; to examine the food and drink which we consume; to warn us of the dangers of impostors and poisons; and to warn us also of the lethean elements of destruction that lurk in the smothered fires of the devil-broths that prey upon the vitals of our fellow-men. These servants of mankind will enter the sanctum sanctorum of quack doctors and apothecaries; they will even invade the splendid establishments of manufacturing chemists. They will sit in judgment over the market-places, and inspect the staffs of life as they come smoking from the oven or bleeding from the slaughter-pen, approving or condemning, as each may deserve. Medical intelligence will demonstrate to the great public the way to find pure bread, pure meat, pure drinks, and pure medicines. And the final and successful work of the enlightened sanitarian will show our fellow-creatures how to prevent disease by preserving the integrity and healthful vigor of Nature's laws in obedience to the commands of God.

Finally, the grandest mission of scientific men in this world is the glorious task of harmonizing the discoveries and the principles of science with the teachings of Divine Revelation. To accomplish this great object, and to satisfy the minds of the *honest* of all climes and countries in their anxious cravings for the truth, we should be willing to meet in the investigation of *what is truth*, without sectarian prejudice, pre-conceived notions, or religious bigotry. The assertion that the majority of scientific men are atheists is an unfounded and slanderous allegation. Men who perform the work of gods as ministers of mercy should not be classed with devils! While we contemplate with astonishment the startling results of chemical combinations; while we revel in the increasing wonders of the microscopic world; while we investigate anatomically and physiologically the organization and functions of animal and vegetable life, and strive to understand that mysterious vital principle that rules and reigns in them all, we must take it for granted that a GOD-POWER created and sustains them all, in whose gentle love and mercy for the children of men, He has wisely ordained that matter and mind should show forth His glory, and in all things commanding the adoration and praise of His dependent creatures!

I would that my medical brethren and men of science everywhere could be "persuaded" to be Christians, in deed and in truth; for there is nothing in the letter, spirit, and practice of Christianity whose observance would not adorn the medical character and give grace and beauty to the wisest of mankind. And what matter is it to the Christian scientist whether this terrestrial globe is four thousand or four millions of years old? What does it concern the present welfare and future happiness of men whether or not a thousand pre-historic races have come and gone before the creation of the world's present inhabitants? Nor is it necessary to refer to the popularly received contradictions between the science of geology and the Holy Scriptures, nor to any senseless "ism" that may disturb or distract our childlike faith in the divine authenticity of the Bible. Suffice it for us that claims of universal intelligence demand our best efforts for the elevation, purification, and regeneration of society, and the undiscovered treasures and blessings of the future await the magic touch of science and art. And from that sublime harmony which exists between the good of all systems, all of the facts necessary for our material and social advancement shall yet be developed, "according to the eternal fitness of things," and we shall be enabled to realize that Christianity and science are the Alpha and Omega of God's glory and man's happiness, both here and hereafter.

Brethren of the Profession, with one mind, one heart, and one faith in the virtue and honor of our noble cause, let us renew our firm resolves to consecrate our best efforts and energies to the humane and benevolent mission of scientific medicine. Let us cast aside all selfishness and exclusiveness; all rankling and bitterness that may hinder us in our task of human benefaction. While human misery has a tear to wipe away, let us "be up and doing;" while bloody wounds maim "the temple of the living God," let us "be up and doing;" while pestilence stalks abroad in the world, let us "be up and doing." Let us, with our hearts in our hands, advance the standard of progress, and with strong arms and ready minds keep firm hold of all of the weapons of truth to fight for the redemption of mankind from the sad consequence of their own misdoing and criminal folly and from the blight of disease, to the honor of medical science and its devoted servants.—*Richmond and Louisville Med. Jour.*

A Case of Vomiting in Pregnancy successfully treated with Ingluvin (Ventriculus Callosus Galinaceus).

BY CHARLES G. FROWERT, M. D., PHILA.,

I was called to see Mrs. S., aged 37 years, June 8, 1877, who stated that she was suffering from constant and excessive nausea, which was duly relieved upon assuming the recumbent posture. This continued, gradually increasing from day to day, until in a week it eventuated in retching and emesis, during which watery matter with an acid taste, followed by bile, was ejected. This reached such an extent that the patient had hardly any freedom from it during the whole twenty-four hours, vomiting as often as twelve times a day.

Taking this in connection with suppression of the menses, I concluded she was pregnant, and obtained from her the following history:

This was her third pregnancy. With the two preceding ones she suffered quite as much as with this, and, according to her statement, "had employed the services of several physicians, who administered almost every medicine in the pharmacopœia," but without avail, and she was obliged to lie in bed almost the entire nine months, in order to obtain relief from vomiting.

I proceeded to treat her in the orthodox way; advised the administration of a gentle cathartic, gave carbonic-acid water freely, and prescribed the following:

℞	Bismuthi subnit.	ʒj.
	Pepsinæ sacch.	ʒ ss.
	Cerii oxalat	gr. ix.

M. In chart. No. vj. Div. et sig. one every two hours in carbonic-acid water.

This was not followed by the slightest remission in the symptoms.

I then doubled the quantity in each powder; this also failed.

I finally increased the subnitrate of bismuth to ʒ i. doses every three hours, as recommended by several eminent physicians. This was followed by acid. hydrocyanic. dil., two drops every three hours, also highly spoken of. Various hygienic measures, as well as some other medicines, were resorted to, but all failed to bring about the desired relief.

About this time my attention was called to the preparation *ingluvin,* recommended in cases of this kind, and I determined to try it at once.

I prescribed *five grains* of Warner's ingluvin every two hours, and continued this for three or four days, without any appreciable result other than diminishing the violence of the attacks of retching and vomiting.

Increased the dose to *ten grains* every two hours. This seemed to relieve my patient to such an extent that she only vomited before meals, at the sight or smell of food.

I then increased the dose to fifteen grains, giving it half an hour before each meal. This soon had the desired effect of controlling the attacks. Continuing the same dose every three hours, the vomiting and nausea ceased entirely in four or five days.

She made a complete recovery in the second month of her pregnancy, in three weeks from the time she commenced the use of ingluvin.

Ingluvin has certainly proved very efficacious in my hands, and I would therefore cordially recommend it to the medical profession as worthy of a trial. I consider it an invaluable remedy in obstinate cases of vomiting in pregnancy.

I might also add that I have used ingluvin successfully in several cases of chronic dyspepsia, in which pepsin had failed.

Proceedings of Societies.

THE UNION DISTRICT MEDICAL ASSOCIATION.

Reported by D. Millikin, M. D., Recording Secretary.

The Union District Medical Association met at Richmond, Ind., October 25th, 1877, Dr. Boyd, of Dublin acting as chairman *pro tem.*

Drs. Stevens, of Indianapolis, Stoody, of Hagerstown, and Harriman, of Richmond, were invited to participate in the day's proceedings.

Dr. J. W. Rutledge, of Cambridge City, Ind. presented to the Association an alcoholic preparation showing an invagination of the colon in such a manner and to such a remarkable degree that the caput had descended to a point not more than two inches from the anus. The caput, of course, in its descent into the large intestine had carried the ileum with it. The specimen showed the invaginated portion to be greatly thickened. Dr. Rutledge said he was called in May 1877 to see a little patient eighteen months old, and treated it for severe colic and constipation, which yielded promptly. After a week's comfort the little girl seemed disposed to lie quietly in bed and suffered much pain on being placed erect. After a fortnight there could be detected a large sausage-shaped tumor lying transversely across the abdomen a little lower than the proper position of the transverse colon. This tumor could be freely manipulated without causing pain. At this time after the administration of santonine, the child passed a lumbricus; and some green corn which it ate upon one occasion was passed, undigested, in twelve to eighten hours. From this time on the child suffered the most violent attacks of pain every second Monday. No amount of quinia would suffice to avert these attacks, and, while they lasted the child took incredible quantities of opiates. Meanwhile, during the whole summer, the transverse tumor retained its position. Finally on the last day of July the child experienced such intense continued pain that one eighth of a grain of morphia every two hours hardly sufficed to control it. In this last attack there was some diarrhœa with one or two bloody stools and for the first time the child vomited. Death took place from exhaustion, one-hundred days from the beginning of the illness. Dr. McIntyre observed that the enormous thickening of portions of the intestine were evidently a result of long incarceration. Dr. Orr regretted that the intestine had not been artificially distended with water or air. Recalling the fact that the child had been violently tossed about in play, about the time of the commencement of its illness, he took occasion to condemn the rude treatment which children are subjected to under the pretense of amusement. He would not positively say that this invagination had its origin in this manner, but he could recall cases of serious injury to joints and other structures by foolish violence. Dr. Millikin remarked that the absence of any notable constipation, of pain and tenderness, of vomiting and of all urgent symptoms, made the case very obscure. He did not see how a correct diagnosis could have been made. Dr. Boyd alluded to a recent English case in which the cæcum was so far invaginated as to pass out of the anus to a length of three inches. It was recognized and returned by means of laparotomy.

Dr. McIntyre, of Richmond, reported cases of fracture of the femur in very young children. He had treated a boy two years and five months old whose femur had certainly been fractured by a table being upset upon it.

Another little patient, twenty-two months old had sustained a singular injury by being run over by a cow, and in his case there was loud crepitation. Another case of fracture in the shaft of the femur occurred in his practice in the person of a baby fifteen months old, whose nurse had fallen upon it. He asked whether he was having a "run of luck" or whether these cases were common. Dr. Wiest replied that these cases were not rare in practice or in the books. He had treated fractures of the thigh in patients eight and eleven months old. Dr. Hibberd alluded to cases of fracture in rebellious and restless boys who could not be kept in dressings. The results in the cases he described were surprisingly good. Dr. Wiest denounced the long splint as particularly barbarous for fractures in children. He had no difficulty in making his little patients safe in plaster and pasteboard dressings and at the same time so comfortable that they would not kick off his apparatus if they could. Dr. Millikin had recently treated a fractured femur in a little boy who was determined to walk. He applied the Bavarian plaster-dressing to the thigh and carried it up over the abdomen almost to the sternum. The boy could lie comfortably and be moved about safely but could not make the first movement toward getting up himself.

Dr. Weist read a report of a case of Mellituria occurring in the person of a temperate, middle aged farmer who complained of insatiable thirst and a very frequent call to urinate. At his worst he passed about twenty-six pints of urine in each twenty-four hours, of a specific gravity of 1038, and containing abont one pound and five ounces of sugar. Continued treatment with opium, tincture of the chloride of iron, and glycerine, gradually brought down the quantity of urine to six or seven pints in twenty-four hours. At one time he took jaborandi upon which the daily amount of urine quickly ran up to twenty-four pints. Returning to the iron and opium the former improvement was regained. The man is now doing moderate labor on his farm, although the urine is still loaded with sugar. The report was discussed by Drs. Hadley, Hibbard, Blount, and others.

Resolutions were introduced and adopted declaring that the United States Pharmacopœia purports to represent the views of the physicians of the United States in the matter of *materia medica*, and that, therefore, it ought to emanate from, and be controlled by, whatever medical organization most fully represents the profession of the whole country. The American Medical Association is therefore called upon to revise the Pharmacopœia in 1880, and thereafter, by its duly appointed agents, to publish and distribute it.

After a recess for dinner Dr. Mary F. Thomas, a member of the Wayne County Medical Society, was elected to membership.

Resolutions were passed endorsing the organization of Boards of Health in Ohio and Indiana and condemning in strong terms any attempts to place regular and irregular physicians together, on such boards.

Dr. Boyd read a paper on Puerperal Eclampsia advocating its treatment with large doses of *veratrum viride*. He described one case particularly in treating which he had given twenty-drop doses of the fluid extract in intervals of fifteen minutes, until after the administration of six doses, his patient was vomiting, her pulse was down to 54 beats per minute, and the spasms, were interrupted completely. In the discussion upon the paper, Dr. Mary F.

Thomas read notes of a case she had recently treated in accordance with the views of the essayist. She had administered one hundred and thirty drops in a very brief time with the effect of dilating the os and interrupting spasms of the most violent sort. Dr. Hadley coincided with the views of the essayist. He had freely used veratrum for twenty years and believed it to be a powerful spinal sedative, applicable as a matter of course to cases such as had been described. Dr. Harriman was inclined to suspect that the case reported by Dr. Mary F. Thomas was perhaps hysterical in its nature. It was at least very significant that the convulsions ceased just about the time the os dilated. This was the common rule with hysterical convulsions. Dr. S. C. Thomas used veratrum in puerperal eclampsia with good effect. It was his custom to give doses of one drop every fifteen minutes. Dr. Millikin enquired if the alleged power of veratrum to control convulsions could be equally obtained from doses of one drop or one dessert spoonful. He believed the advocates of this drug were proving too much. He was compelled to doubt whether it was any more valuable in the cases reported than any other nauseant. Dr. Weist had been in consultation with Dr. Thomas in the treatment of her case. He was very positive that her convulsions were strictly epileptiform and that there was nothing hysterical in the case. Dr. Boyd in defending his paper enumerated nineteen cases, all that he could hear or read of, in which veratrum, boldly given, had checked the convulsions. In these cases also, the fœtal mortality was far lower than when other modes of treatment were used.

Dr. McIntyre exhibited an impromptu apparatus for the control of *post partum* hæmorrhage. It consisted simply of a rubber condom, slipped over a catheter, and a bulb-syringe. The catheter suffices to convey the condom into the uterus and, when there, it is to be pumped full of water. There would thus be obtained the double advantages of cold, and direct pressure upon the bleeding vessels. Dr. M., said he had distended the aparatus quite to the size of the gravid uterus.

The following officers were elected for the ensuing year: *President:* Dr. J. R. Weist, of Richmond; *Vice-President:* Dr. John Moffitt, of Rushville; *Secretary:* Dr. Dan. Millikin, of Hamilton; *Corresponding Secretary:* Dr. J. W. Rutledge, of Cambridge City; *Treasurer:* Dr. R. W. Sipe, of Fayetteville.

The Association will meet next at Rushville, Ind., on the fourth Thursday of April, 1878. The following members have been appointed to prepare essays:

Drs. Jno. E, Chitwood, of College Corner; Dan. Millikin, of Hamilton; J. E. Morris, of Liberty; V. H. Gregg, of Connersville; Wm. A. Pugh, of Rashville; Wilson Hobbs, of Knightstown; J. W. Rutledge, of Cambridge City; J. H. McIntyre, of Richmond, C. N. Blount, of Hagerstown.

Correspondence.

TO THE CINCINNATI LANCET AND OBSERVER:

In your journal for June, 1877, G. S. Franklin, M. D., says, those who complain against the provision of the code forbidding advertising ask, "To open the tightly closed door of self-advertisement just a tiny bit, so that in some small measure our brethern can ape the ordinary practices of empirics."

He says that "empirics take this course, simply to gull the credulous, to trap the unwary by means of lying advertisements and delusive promises, with the plain intent to bleed the people, to put money in their purse."

He admits that there may be an honest physician, who would not lie in his advertisement; yet asserts that he who wishes to publish a true advertisement desires to ape the empiric, who publishes a lying one. Like a certain professor in a double barreled medical school at Louisville, he would combat error by shutting truth out of the field. Some one else tells a lie; therefore, the Code says, I shall not tell the truth.

The physician's ability may equal, or even surpass the quack's pretensions; but the Code says he shall not, in the only mode affording no opportunity for intrigue, tell the people where they can get the service they need. Dr. Franklin asks the advocate of advertising, "where would he draw a safe line, on the hither side of which is honorable self-advertisement, while beyond is empiricism?" There is a safe line already drawn, it is the line between truth and falsehood. All advertisement within the limits of truth is honorable, code or no code. Beyond those limits, whether within the self-styled regular profession, or out of it; whether by the papers, by one's own mouth, or by the mouth of another, all is quackery, the essential of quackery being falsehood.

Those who sustain this provision of the code would shut the mouth of the true man, leaving the liar, whose mouth they can not shut, free access to the public ear. This provision of the code does not restrain the quack irregular who goes on advertising openly, rejoicing in the possession of the entire field to himself. It does not restrain the quack regular, who gives the lie to his profession of loyalty to the code by boasting himself, or by a partisan, of his wonderous skill and success; or by suffering the papers to publish that he gives special attention to certain diseases; or that he is treating Miss A. B., for catalepsy, has performed ovariotomy on Mrs. C. D.; or ligated a femoral artery in E. F., while he votes to expel from a medical society one who, refusing to be longer bound by a code that restrains no one else, advertises openly.

The people have a right to know where they can get the service they need; and if Dr. F., can do good work he not only wrongs no one by a publication of that truth, but benefits those who have hitherto accepted poor service, not knowing where to get the good.

Dr. Franklin thinks, if free advertisement were permitted, "some of us are liable to be tempted beyond our strength to bear;" that is, if permission be given to publish the truth, some of us can not resist the temptation to publish a lie. From the amount of lying in the profession of loyalty to the code, there is reason to suspect his fears not altogether groundless.

As an example of the working of this provision of the code, take a few facts in the history of the Evansville Medical Society. For years members of that society had suffered the publication of their names in connection with cases in the papers of the city. They sometimes gave the reporters information in regard to cases. In 1875, one, who for twenty years had practised medicine in loyalty to the letter and spirit of the code, who often denounced such publications as a sneaking mode of advertising and a violation of the code, weary of the restraint that bound no one else, and asserting his right to regard the code as obsolete in that city, came out in a formal advertisement. At the June meeting of the Society, one week after his card first appeared, it was voted to institute proceedings against him, and at the July meeting the vote for his expulsion was unanimous.

Before the vote for his expulsion was taken he called attention to the record of several members of the society, and after his expulsion, a committee was appointed to investigate and report in regard to the matters to which he called attention.

At the August meeting that committee reported, and then the society voted to excuse the vice president, who presided at the previous meeting, for selling patent medicines, which he is still doing and made him an honorary member of the Society. Two other members, one of whom signed the formal charge against the expelled one, were excused for advertising as specialists and general practitioners in the city directory for that year. Another sent a denial of the charge of having interfered with a patient of a fellow member; yet the society voted to excuse him, and thereby voted him a liar. In short, they voted to excuse each other all around except in the case of one then out of town. He soon returned, but his case was never adjudicated.

Previous to the next meeting of the Indiana State Medical Society the expelled member published a letter to the secretary of the State Society calling attention to the above facts. The secretary published a squib addressed to the physicians of Evansville, saying he thought the sending of a card to their erring brother ought not to count against him. The erring brother did not apologize for the injustice he did the State Society in supposing it less false than that of Evansville in its profession of loyality to the Code of Ethics.

In the month of April last, a member of the Evansville Medical Society advertised as a specialist in a daily paper, and after waiting over the time for three monthly meetings, without the presentation of a charge against him, quietly withdrew from the society.

Within the present year one member of the Evansville Society, has been published in the papers as giving special attention to diseases of the eye, and holding clinics for treating such cases. Another has been published as holding clinics for treating veneral diseases. Still another member furnished a reporter information in regard to a case of catalepsy under his care, the publication of which was very mortifying to the lady. Two were published in connection with an ovariotomy, and two in connection with a ligation of a femoral artery.

This provision of the code works only against the true man that obeys it in letter and in spirit, and in favor of the scoundrel, regular or irregular, to whom an opportunity to lie is a temptation beyond his strength to bear.

Respectfully,

Verd Antique.

24th, October, 1877.

Since the organization of the American Medical Association much has been said in praise and condemnation of the code of ethics adopted by that body; and especially in regard to the section pertaining to professional advertising. Even the late President of the Association took occasion at the annual meeting to criticise some of the provisions of the code, in which he was sustained by many good and true men in the profession. While others equally just and true, regarded his course on that occasion as very unwise and as wholly uncalled for.

We know nothing of the special grievances of our correspondent, but we do know that in other places than Evansville there are men who retain their good standing in the profession, and at the same time manage by some hocus pocus to keep their names continually before the public in the columns of the secular press. Either the provisions of the code should be complied with as the highest law of the profession, or it should be amended so that it would be acceptable to all honorable practitioners. If the section referring to the the vexed question of advertising were abrogated, we do not believe the members of the profession would resort to the secular press with flaming notices of their superior ability in curing disease, when that object is desired, it is very proper in the minds of many to give a popular free lecture and invite the public through the local papers to come and hear, of course they will afterwards come and get cured and at the same time assist in filling an aching void in the doctors purse.

Much is said about our noble and liberal profession. Medical students are lectured on the subject until they are ready to believe that the conferring of the degree of Doctor Medicine elevates them into a race of superior beings, who are no longer of the earth, earthy, but that of such is the kingdom of heaven. From our observation we believe that about four hundred and ninety out of every five hundred students begin the study of medicine with the expectation of practicing medicine *as a business*, and without a thought in regard to the nobility, liberality or saintly character of their future occupation. Their first, second, third and last motive in chosing medicine as a profession is to make that profession bring them in a good living or possibly wealth and honor, but wealth first. Of the other ten in five-hundred students, about nine begin the study of medicine because they have nothing else or better to do, and one because of his love of science.

We believe it is wise to use any right and honorable means that may present for elevating the character and standing of the medical or any other profession, and that can only be done by acts of the recognized members of the profession. And if the assembled wisdom of the American Medical Association says it is for the general good of the profession to keep aloof from the secular press, let us as members of the profession obey its mandates both in spirit and letter. If the contrary, let there be no time lost in repealing the obnoxious section.—ED.

Editors of the Cincinnati Lancet and Observer:

The favor organic phosphates have received from the profession during the past year, indicates that the general results following their employment have been satisfactory. The writer has hundreds of letters from physicians located in almost every county of every state who declare that they have derived great advantage from their use. In fact so uniformly is this verdict given, that the Glycerite of Kephaline may be said to be bearing well the ordeal of professional trial. This success irritates Dr. Samuel R. Percy very sorely, and he spits out his venom in an editorial written by him or for him in the Hospital Gazette, of New York. The charges of plagarism are an almost verbatim reiteration of those made under Dr. S. R. Percy's signature in the April number of New Remedies. "The hypophosphite of oleine and glycercine" which Dr. Percy claimed was learned from his essay on "Phosphorus" was noticed after a few trials in the Druggist Circular of March 1875, but while good in theory it proved to be impracticable in practice, but Dr. Percy does not suggest a decomposition of phosphorus in olein and glycerine, confining his formulæ either to lard oil, or cocoa butter. In my article on hypophosphite of olein published in the October number of the Druggist's Circular, 1876. I refer kindly to Dr. Percy's essay on "Phosphorus," then unaware that he was the proprietor of a copy-righted nostrum.

Behind all this there is a history; my paper "Tabes Pulmonum" written in 1871 and rejected by the editor of the "American Journal of Medical Sciences" but published in the CINCINNATI LANCET AND OBSERVER in August, 1877 and reprinted in a pamphlet, presents all the facts I claim to have known previous to 1872. Now, what proof have I, that the paper was written several years ago? The evidence of persons who saw me writing it, and the condition of the manuscript when forwarded to the LANCET AND OBSERVER.

I am sure, Mr. Editor, the very manuscript itself was to your mind conclusive proof of age and rough usage. What say you?*

Now, comes the gravest charge of all—that I am professor of surgery in the Eclectic Medical College and hold a chair in the "University College of Pharmacy," I believe the latter institution has no existence except on paper, with the other institution I have no connection whatever; nor have I had with any medical or pharmaceutical school since I left the Pennsylvania College of Pharmacy. I am simply a regular physician, following the ordinary routine of practice and intending to observe in every particular the code of ethics of the American Medical Association. To me it is a law, and a bond of honor. It seems entirely out of place for the discover of copyrighted "Vitalized Phosphates" to attack me on ethical grounds.

He also endeavors in both of his attacks to convince the profession that all I know about brain chemistry I have learned from his essay and the circular accompanying his patented "phosphates." If any one has one of these circulars he will find that Dr. Percy quotes the very papers of mine which he declares I stole from this very circular. A very curious phenomenon indeed. The charge that I confound hypophosphite of olein and protagon is respectfully referred to all who have read "Tabes Pulmonum" in the August number of the LANCET AND OBSERVER as a specimen of the veracity which characterizes this Hospital Gazette editorial, from beginning to the end.

I respectfully invite Dr. D. G. Brinton, editor of the Medical and Surgical Reporter to tell what he knows about my paper on "Consumption" which he reviewed several years ago, and whether that paper, if authenticated by him, would not annihilate the charge that I got my ideas of brain chemistry from Dr. Percy. Let him speak pro or con. I want "the truth the whole truth and nothing but the truth" and I know the truth will dissipate all these vile slanders in thin air.

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*The manuscript certainly presented the appearance of having been written at the time indicated by Dr. Polk.—ED.

Editorial.

The friends of progress in medical education have good reason to feel encouraged by the signs of the times. The medical department of Harvard University, the pioneer school to inaugurate a systematic graded course was never in a more prosperous condition, than at this time. The medical department of the University of Pennsylvania has a class of 140 new students, enrolled for the three years course. And recently, the widow of the late J. Rhea Barton of Philadelphia, has endowed with fifty thousand dollars the chair of surgery in this institution. The professorship to bear the name of the distinguished surgeon, in whose memory the gift is made. Also the guarantee fund of about seventy thousand dollars, which was raised to protect the school against a supposed loss of income, consequent upon the anticipated reduction in the size of the class, not being needed for this purpose, has been passed over to the general endowment fund of the medical department of the university. It pays to do right.

We also learn that other colleges, that have adopted, what is known as the systematic graded course of teaching are in a prosperous condition, having suffered no diminution in size of classes or revenue in consequence of adopting the new departure.

HARD TIMES seem to have exerted no perceptible effect in reducing the number of students in attendance at the best Medical Colleges. Nor do the fees charged by these institutions seem to exert any influence in either increasing or diminishing the size of classes.

The reputation and character of the individual members of the college faculties, the clinical and laboratory facilities, the course of instruction, in connection with the standing of the colleges, seem to be the ruling elements in directing the steps of the coming medical man.

About three years ago the late Dr. Unzicker, of this city, called the attention of the profession through this journal, to the value of *cosmoline*, one of the products of petroleum. Since then we have had frequent occasion to use it in cases of burns and find it gives almost immediate relief. As it effectually excludes the atmopshere. As an emollient it is excellent.

The Hospital Gazette and Archives of Clinical Surgery, has been very materially increased in size, and improved in appearance. It is edited and published semi-monthly by Drs. Bermingham and Lyons at the very low rate of $1.50 per annum.

Reviews and Notices.

Cutaneous and Venereal Memoranda. By Henry G. Piffard, M. D., George Henry Fox, M. D. This is a neat pocket edition of a valuable work especially adapted for the use of students. The work is divided into forty-five chapters, including about three-hundred pages of printed matter. Almost the entire book is devoted to the discussion of the symptomatology and treatment of skin diseases. In giving the various formulæ, the metric system of weights and measures is used in addition to the old method. Eastern authors, who expect to sell their works in the West and Southwest, should be careful not to write their formulæ in accordance with the metric system, for, notwithstanding its superiority over the old system it is viewed only with disfavor in this section of the country and will probably never be adopted. The authors of this little work have wisely used both systems and thus avoided making a serious blunder. The cheapness of this pocket edition will, no doubt, insure a large sale. T. C. M.

Practical Hints on the Use of the Microscope. By John Thin. This is the second edition of a valuable publication intended for the use of persons learning the manipulation of the instrument. It is written in a clear, concise style, so that a small child can read the work understandingly. For beginners, we know of no work equal to this; persons who are accustomed to the use of the microscope however, will not find much of interest in the book. It will undoubtedly meet with a large sale in the United States where a work of this kind has been sadly needed for many years past. The work, as before stated, is intended more for the general public and amateur microscopists, than for professional investigators. T. C. M.

Transactions of the Medical Association of the State of Alabama. 1877, *p.* 180. Contains the minutes of the last meeting of the Association. The annual message of the President is full of interesting reading, and is a plain common sense document. The annual oration of Dr. Fermier, is a strong temperance address, and might be used and quoted with great advantage by the followers of Francis Murphy. The only really valuable paper in this publication, is that of Dr. Jerome Cochran, of Mobile, entitled "Yellow Fever, its Relation and its Cause." T. C. M.

Transactions of the Medical Association of the State of Georgia. 1877, pp. 198. The address of the President, although a little flowery at points, is interesting and readable. The annual oration by Dr. Todd, of Atlanta, is well written and must have afforded the association much amusement, abounding as it does in a dry vein of professional sarcasm duly permeated by droll humor. The most valuable papers in the transactions are those of Dr. A. W. Calhoun, of Atlanta. One of these on transplantation of a rabbit's conjunctiva to the human eye for the relief of symblepharon is very interesting. Dr. R. M. Smith, of Athens, gives the history of a case in which the left primitive carotid artery was successfully ligated. Quite a number of well written papers are included in the publication. Taking it all in all this volume of the Transactions is above the average." T. C. M.

Wood's Physician's Vade-Mecum and Visiting List. Arranged and prepared by H. C. Wood, M. D. Philadelphia: J. B. Lippincott & Co.

This is one of the most complete of a class of books that are indispensable to the practitioner. The pages are so ruled that opposite each week's visiting list, there is a convenient place for current memoranda, as well as for keeping a cash account.

Surgical Observations with Cases and Operations. By J. Mason Warren, M. D., Surgeon to the Massachusetts General Hospital. Fellow of the American Academy of Arts and Sciences, Etc. Boston: Ticknor & Fields. 622 p.p. Price $3 50

This work is a most interesting record of the clinical labors and observations of the late distinguished author. The cases cited mostly came under his care in the wards of the Massachusetts General Hospital. The chapters are numbered and classified according to the regions of the body. Some of the rare cases being illustrated by wood cuts.

The author neither designed the book as a systematic treatise or text-book, but as a record of the results of his large and valuable clinical experience, with his observations as to the history and course of various affections that come under the care of the professional surgeon, with the treatment to be adopted. The volume is a valuable contribution to American surgical literature.

Medical and Surgical Reports of the Boston City Haspital. Second Series. Edited by David W. Cheever, M. D., and F. W. Draper, M. D. Boston: Published by the Board of Trustees.

This volume is a report of the labors of the medical and surgical staff for a period of five years, from June 1, 1869 to June 1, 1874. During that time the staff suffered losses by death of Drs. Winslow Lewis, John Jeffries, D. McB. Thaxter and Charles E. Buckingham.

A very excellent description of the hospital is given by Edward Cowles, M. D., resident physician and Superintendent. Accompanying the text are drawings of the different parts of the buildings.

The reports of cases by different members of the staff are handsomely illustrated, by means of the heliotype process and lithographs.

The volume is a credit to the staff, and an honor to a liberal and enlightened board of trustees.

Lectures on Fevers. By Alfred L. Loomis, A. M., M. D., Prof. of Pathology and Practical Medicine in the medical department of the University of the City of New York, etc., etc. New York: William Wood & Co., 1877. For sale by Robert Clarke & Co. Price $4 00

This volume of four hundred pages consists of the lectures delivered by the author in the medical department of the University of the city of New York, to the class of 1876–77, phonographically reported by Dr. Wm. M. Carpenter.

In the first lecture an etiological basis of classification is adopted, dividing fevers into three classes. *First*, contagious fevers. *Second*, miasmatic or malarial fevers. *Third*, miasmatic-contagious fevers. In the first class is embraced, typhus, small-pox, measles, relapsing fever, scarlet fever and milliary fever. In the second class, intermittent fever, pernicious fever, remittent fever, dengue and typho malarial fever. And the third class, typhoid fever and yellow fever. This class being regarded as a connecting link between the first and second. After announcing the classification, the author at once proceeds in the same lecture to discuss the morbid anatomy of typhoid fever.

In reviewing the etiology of typhoid fever the generally accepted belief is expressed. "That it may be communicated from one person to another through the excrements which have undergone decomposition after their discharge. That an endemic of typhoid fever only occurs where the air or drinking-water of the locality has become poisoned by emanations from typhoid excrements which have undergone decomposition, and that, if the fever becomes epidemic, it is circumscribed, and not wide-spread.

The third and fourth lectures are devoted to the symptomatology of the disease and the fifth lecture to its prognosis and duration. On the subject of treatment what is commonly known as the *Antipyretic* is advocated, the most efficient and reliable agents being the external application of cold by means of baths, packs and effusions, and the internal administration of quinine. The various methods of using cold applications are detailed. In administering quinine for its antipyretic effect, the author advises the giving of thirty or forty grains within a period of two hours, and the use of these remedies persisted in until a reduction of temperature is accomplished. With all deference to the learned author and his large experience we beg leave to protest against the enormous doses of quinine recommended in the treatment of this disease, although he qualifies his advice by stating that "the peculiarities of each patient must be studied, and these agents must be so administered as to suit each individual case." We cannot but regard such dosing as unsafe, and especially so in private practice where a physician can see his patient only once or maybe twice in twenty-four hours, and consequently unable to observe the effect of such a course of treatment.

The author successively lectures on Yellow fever, Intermittent fever and Remittent fever, Dengue, Typho-Malarial and Typhus fevers, Small-pox, Measles and Scarlatina.

Professor Loomis is well-known to the profession of this country as one of its ablest members and teachers, and in this his latest work we find presented the most recent views of acknowledged authorities, as well as the results of his own extensive observations in the history, diagnosis, duration, prognosis and treatment of the various types of fever.

Gone on Before, O'er the River of Time. A most magnificent song by Prof P. O. Hudson, adapted for Organ or Piano.

"*Touch me Gently, Father Time,*" Is the title of a new and beautiful song and chorus by Charlie Barker, author of the famous "*He Holds the Fort of Heaven.*" Dealers are ordering it by the thousand. The whole world will soon be singing "*Touch me Gently, Father Time.*" Any music dealer will mail you this beautiful song for 40 cents.

Published by F. W. HELMICK,
50 West Fourth St., Cincinnati, O.

Forensic Medicine and Toxicology. By W. B. Woodman, M. D., F. R. C. P., Assistant Physician to the London Hospital, etc., and Charles M. Tidy, M. D., F. C. S., Prof of Chemistry and of Medical Jurisprudence and Public Health at the London Hospital, etc. With eight full-page lithographic plates, and one-hundred and fifteen other illustrations. Philadelphia: Lindsay and Blakiston, 1877. For sale by Robert Clarke & Co., price $7.50.

Medical Jurisprudence is one of the subjects most ignored by the general practitioner, in fact he rarely gives it any attention until some unappreciative client rudely jostles his equinimity by bringing a suit for malpractice, or he is summoned to give testimony in some suspicious case of poisoning, abortion, infanticide or rape; when he is awakened to the fact that his knowledge of Medico-legal lore is a minus quantity. Nor is the broad shouldered practitioner wholly to blame for this lack of knowledge on his part, for the professors at his Alma Mater, although living fountains of medical wisdom, constantly sending forth gushing streams of informations on almost every subject pertaining to the healing art, wholly ignore the subject of Jurisprudence. The authors of this truly great work have largely supplied the want felt sooner or later by almost every doctor. They have laid under contribution all the well-known late works on medicine and surgery, chemistry and toxicology, the latter subject occupying nearly one-half the volume and is probably the most complete treatise on this subject ever published, the plates illustrating the post mortem condition of the stomach after poisoning by various articles are superior as works of art. The work is quite as valuable to the legal as to the medical profession and worthy of a place in any professional man's library.

Disease of the Mind. By Charles F. Folsom, M. D., Secretary of the Massachusetts Board of Health. Boston: A. Williams & Co. For sale by Robt. Clarke and Co., Cincinnati, O., Price $1.25.

This little volume contains no surplus words, but is filled with practical information relatting to the early management of the insane and the method of treating insanity pursued in the past as well as those in vogue at present. The author is a trenchant advocate of the less-restraint system, and the statistics he gives show that more freedom does not increase the number of accidents or escapes. He is equally in favor of occupation for the insane as a class.

He alludes to the claim that the American type of insanity is more severe than the English, and argues the question as to whether disease of the mind in general is on the increase. The negative view of this question is taken. The new American State Hospitals for the insane are praised as without rivals, but still nearly every state lacks sufficient accommodation. He favors the appointment of a government luanacy commission, claims that general education is opposed to the increase of insanity, and urges the clinical teaching of disease of the mind. Hereditability has less influence than is usually supposed—insanity being no more likely to be transmitted than Bright's disease or pulmonary consumption.

For the information of persons desirous of entering the Medical Corps of the U. S. Army.

[EXTRACT FROM LAWS OF THE UNITED STATES].

ACT OF CONGRESS, *Approved* JUNE 30, 1834.

"SEC. 1. *Be it enacted, etc.,* That from and after the passage of this Act, no person shall receive the appointment of Assistant Surgeon in the Army of the United States, unless he shall have been examined and approved by an Army Medical Board, to consist of not less than three Surgeons or Assistant Surgeons, who shall be designated for that purpose by the Secretary of War, and no person shall receive the appointment of Surgeon in the army of the United States unless he shall have served at least five years as an Assistant Surgeon, and unless, also, he shall have been examined by an Army Medical Board constituted as aforesaid."

ACTS OF CONGRESS, *Approved* JUNE 23, 1874, and June 26, 1876.

"SEC. 4. That the Medical Department of the Army shall hereafter consist of one Surgeon General * * * One Assistant Surgeon General * * * One Chief Medical Purveyor, four Surgeons, with the rank, pay and emoluments of Colonels, two Assistant Medical Purveyors * * Eight Surgeons, with the rank, pay and emoluments of Lieutenant Colonels, fifty Surgeons, with the rank, pay and emoluments of Majors. One-hundred and twenty-five Assistant Surgeons, with the rank, pay and emoluments of Lieutenants of Cavalry for the first five years service, and with the rank, pay and emoluments of Captains of Cavalry after five years service * * *"

All candidates for appointment in the Medical Corps must apply to the Hon. Secretary of War for an invitation to appear before the Medical Examining Board. The application must be in the handwriting of the candidate, stating age and birthplace, and be accompanied by testimonials from Professors of the College in which he graduated, or from other Physicians in good repute. Candidates must be between 21 and 28 years of age, and graduates of a Medical College, having a thorough and complete course of Medical education—evidence of which must be submitted to the Board before examination.

The morals, habits, physical and mental qualifications and general aptitude for the service of each candidate will be subjects for careful examination by the Board, and a favorable report will not be made in any case in which there is a reasonable doubt.

The following will be the general plan of the examination:

I. A short essay, either autobiographical or upon some professional subject—to be indicated by the Board.

II. Physical examination. This will be rigid, and each candidate will in addition, be required to certify "*That he labors under no mental or physical infirmity, nor disability of any kind, which can in any way interfere with the most efficient discharge of his duties in any climate.*"

III. Oral examination on subjects of preliminary education, general literature and general science. The candidate must satisfy the Board in this examination that he possesses a thorough knowledge of the branches taught in the primary schools, and a failure to show this, will end his examination.

Oral examination on scientific subjects will include Chemistry and Natural Philosophy; and that on literary subjects will include English literature, History of the United States and General History—Ancient and Modern. Candidates possessing a knowledge of the higher mathematics, the ancient and modern languages, will be examined therein and due credit given for a proficiency in any or all of these subjects.

IV. Written examination on anatomy, physiology, surgery, practice of medicine and general pathology, obstetrics, and diseases of women and children. Oral examination on these subjects, and also on medical jurisprudence, materia-medica, therapeutics, pharmacy, toxicology and hygiene. Few candidates pay the attention to hygiene which it deserves; it is made an important subject in this examination.

V. Clinical examination, medical and surgical, at a hospital.

VI. Performance of surgical operations on the cadaver.

The Board will deviate from this general plan whenever necessary, in such manner as they deem best to secure the interests of the service.

The Board will report the merits of the candidates on the several branches of the examination, and their relative merit in the whole, according to which the approved candidates will receive appointments to existing vacancies, or to vacancies which may occur within two years thereafter.

An applicant failing one examination, may be allowed a second after one year, but not a third.

No allowance will be made for the expenses of persons undergoing examination, as this is an indispensable prerequisite to appointment, but those who are approved and receive appointments will be entitled to transportation on obeying their first order.

(Signed) J. D. CAMERON, *Secretary of War.*

WAR DEPARTMENT, October 31, 1876.

BELLADONNA POISONING FROM APPLICATION TO A RIGID OS. — Dr. Thomas reports to the New York Obstetrical Society: When he first saw the patient she was in the first stage of labor. The skin was of the color of a lobster, pulse 130, respiration rapid, sighing, and shallow, the pupils widely dilated and the patient much alarmed. She looks as if in the eruptive stage of scarlet fever. The labor had not advanced, and the attending physician, supposing that he had a rigid os to deal with, had painted it around freely with the extract of belladonna. — *Am. Jour. Obstet. April*, 1877.

UTERINE THERMOMETRY IN DIAGNOSIS. — Experiments performed by a number of European scientists have demonstrated, according to their statements, that the temperature of the uterus containing a living child is greater than that of the vagina, while if the child be dead the reverse is true. In the former case the uterine temperature is from one-fourth to one-half a degree, Fahr., higher than the vagina, whilst that of the vagina is higher than that of the axilla. — *Pacific Med. & Surg. Journal*, *April*, 1877.

POISONING BY TANSY.—Dr. Welch, of Monmouth N. J., reports a case of poisoning by the oil of tansy taken to produce abortion, the patient a robust young servant girl, when seen was in violent clonic spasm, blood-stained mouth, respiration disturbed, pulseless, feeble cardiac action, and with all the signs of impending dissolution. Brandy was administered at first per anum, afterwards by the mouth, and recovery took place. The oil had been taken two weeks in small doses, and at last the patient resorted to a heavier dose. There was no abortion.—*Report of New Jersey Med. Soc.*

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Obituary.

DR. WILLIAM HUKILL.

Died, at his home in the town of West Liberty, Ohio County, West Virginia, on the morning of the 4th of September, 1877, in the 38th year of his age.

THE CINCINNATI

LANCET AND OBSERVER.

J. C. CULBERTSON, M. D., EDITOR.
T. M. STEVENS, M. D., ASS'T EDITOR.

Vol. XX.—DECEMBER, 1877.—No. 12.

Original Communications.

Article 1.—Address.—Some of the Hygienic Conditions resulting from the Present Condition of Society.

Delivered by W. H. BYFORD, M. D., President of the Tri-State Medical Society, at the Meeting in Evansville, Ind., Oct. 17th, 1877.

Mr. President, Ladies and Gentlemen:—Since I became aware that it would be my duty to deliver an address, professional in its nature and yet entertaining to the public, I have been searching for a suitable subject. Hygiene, in some of its varied aspects, seemed to me to be as likely to possess these two requisites as any I could select. I therefore beg to present to you, in a very imperfect way some of the hygienic effects of our present social condition.

Before entering seriously upon my subject, allow me to say that every great invention or improvement which greatly affects the welfare of the masses physically, morally or politically has necessarily an important hygienic influence and must on this account if not for any other reason be of interest to medical men. And while we would incline to examine them more especially with reference to this last effect, it is not always possible to separate them; hence if I should seem to stray from my legitimate pathway, I hope what I have to say may not be regarded as wholly irrelevant.

No half century, of which we have the history has been so prolific of useful inventions and industrial enterprises as the part of 19th century through which we have passed. The march of improvement in the race, resulting from these has been so great and so striking as to startle those who stop to contemplate it, and contemplating we exclaim what will be the end of this grand and unparallelled progress? How long can this brilliant career last? And to what heights of perfection shall we ultimately attain?

The hopeful look upon it as the gradual approach to a magnificent climax that will sometime be reached, which shall leave nothing to be desired upon earth. Whilst those who are less ardent in their anticipation, fear that it is a pretentious spectacle not unlike a phenomenon occasionally observed in astronomy, in which a world blazes forth with dazzling light in a grand conflagration of glory only to be followed by total darkness and chaos. Perhaps both of these extreme views are wide of the mark and a more moderate experience will be the reality. We may be certain, however, that in this intense strife in the circumstances of the times, there is not only brilliant progress and a probably bright future, but that there is also dangerous if not destructive function somewhere. Can the danger be discovered and avoided, or must we suffer more or less disaster in our swift career?

The bearing of this career of progress in a physical point of view is the one to which as medical men we would naturally address ourselves; but as I have before intimated, we cannot if we would, wholly separate this item of investigation from those of a social and political nature.

I propose to consider some of the more obvious and influential agents employed in this age of progress. The first I will mention is the steam engine with all the machinery for locomotion and production it has made possible. The grand results wrought by this agent are incalculable. Its achievements command our admiration—excite our wonder. More work is done by it, perhaps, in this country at least, than by the muscles of all the men of America combined. It is estimated that the power exerted by the locomotive on the railroads of the world earns annually one billion four hundred millions of dollars. The steam engine enables us to amass wealth and command luxuries that would without it have been entirely beyond our reach. By it we are able to enjoy the fruits of every clime and people; the products of the extreme north, south, east and west are brought to our doors. We are carried by it to distant lands where we may feast our eyes upon the scenery of the old and new world, and regenerate our wasted and diseased bodies in healthful climes. All things and places are brought together. It is in fact a cosmopolitan giant, the magnitude of whose service is beyond all computation. In matters of commerce and intelligence it is aided by the telegraph.

The mere mention of this invention, yet in its infancy, must now awaken in the minds of those who remember when it was not, memories of the wonder with which its earliest achievements were hailed, when from Washington the news was flashed along the wires that "John Quincy Adams has just died in the House of Representatives." Even as his last breath left him the intelligence was participated in by multitudes, hundreds of miles away and excited the astonishment of the distant millions at the stupendous feat as well as their sorrow for the bereavement of the nation. Now the earth is girded and checked with its avenues of knowledge until the world blazes with the light of its mysterious workings.

The steam-engine and telegraph make a community of the civilized nations of the two continents. I think we may fairly assume these two agencies to be the characterizing elements of the nineteenth century as without them the brilliant career which will distinguish our time in the history of the race and point to it as the most influential epoch of human existence. would have been impossible.

Let us now for a time turn from this captivating branch of our subject to look at some of the more humble, yet powerful auxillary means of progress. But few of these can be mentioned in the short space of time allotted to my discourse; but a consideration of them will be suggestive of the almost infinite number of devices continually being called into activity to serve us in our daily life.

The classes of inventions foremost in my mind are the agricultural and mechanical implements used by our farmers and mechanics. It is impossible to approximate an estimate of the amount of labor performed by the steam engine and telegraph in all their ramified departments, but we can come near enough to a proper calculation of the minor inventions to appreciate *their* influence upon the destiny of man.

Suppose the reaper, mower, planter, cultivator, patent rake, etc., where they are used to their best advantage, enables one man, with the aid of horses to do the work of five men operating with the simple agricultural appliances used a half a century ago, the services of four out of five of the male population of the rural districts are rendered unnecessary for farming purposes. The farming community does not need the labor of more than twenty per cent of their own children to assure success and even prosperity. The eighty per cent thus set free from farm labor must seek other employments. They are consequently educated for the professions, various branches of commerce, or mechanical industries. One of the consequences is that the professions of divinity, law and medicine are super-abundantly supplied with a multitude of superfluous aspirants for their honors and emoluments; and thousands of adventurous middlemen are struggling for fortunes in our boards of trade and commission houses to be rewarded with disappointment and ruin.

Should a portion of them seek to become mechanics what are their chances of employment? The machines for making brick, sashes, doors, and nails, for sawing, planing, boring and almost every thing used for building purposes confine their duties to the mere direction of those contrivances to do the work of muscle hands. In this kind of industry we may therefore calculate that about the same proportion of manual labor is dispensed with as in agricultural interests. This consequently adds hordes of men to those already displaced by the before-mentioned inventions to swell the number who swarm our large cities seeking employment. Turn in whatever direction we may and we are met with devices furnished by the ingenuity of inventory to supply artificial means for doing the work intended to develop the people into physical strength and capacity.

Now while I am free to admit and proud to proclaim the grandeur of American genius—the astounding and ennobling achievements of modern inventors; while appreciating and applauding the grand results as blessings—I should be blind to facts obvious and momentous, and untrue to myself if I failed to see and bring to the surface some incidental consequences of all this array of accomplished greatness.

It is impossible of course to grasp in all its magnitude the question as to the influence which the above facts have upon the vital statistics of this country. We may be able faintly to appreciate them as we proceed.

I am far from believing that all the idleness one sees in the world is compulsory, and that there are not multitudes of voluntary vagabonds, yet I do believe that the present most marked increase of vagrancy is due directly or indirectly to the growing facilities for dispensing with manual labor. As I have already tried briefly to show, many who are willing and would be glad to work are thus deprived of the opportunity. This, however, I think is but one of the least powerful of the effects wrought upon the community by inventions. Labor is shorn of its dignity. It is not respectable to work with the hands and the laborer is denominated the mudsill of society. While manual labor must always be regarded as the necessary foundation upon which rests the superstructure of our social existence, the estimation in which it is held is lowered by the great consideration that it is a subordinate to the more profitable and consequently more honorable agencies for obtaining wealth and emolument. From this consideration arises the effort of parents to educate their children to be middlemen, professional men and capitalists.

There is but a limited opportunity for commercial supremacy or professional success, and the failure to obtain either is seen to be disastrous to those who aspire to them; consequently very many of such persons who have been thus falsely taught become helpless and despairing and take rank among paupers or criminals. The energetic and ambitious will generally be found in the latter category. Unfortunately incompetency is not the only cause of failures. Some possessing the qualifications and capacity for success in the more elevated enterprises of life are ruined by the examples of their more prosperous superiors. Respectability is associated in the minds of many with the necessity of living in the same style and indulging in the same luxuries, if not vices of those to whom they look as examples. Hence the display and riotous extravagance of the young men who think they have succeeded or see success in the near future. The strong desire to keep up appearances to the highest possible grade leads this class of people sooner or later to ruin in a pecuniary point of view. Then by a lesson in vice and debauchery they become moral wretches and fit subjects for lunatic asylums, poor-houses or the prison.

The classes of people thus in part vagabondized by our peculiar views on the subject of labor and the great labor saving machinery of this nation constitute at once the great cesspool of vice and disease. They generate, contract, and carry about them a very large proportion of the diseases that can be imparted from one individual to another. In fact the sanitarian would feel secure against the prevalence of epidemics if he could get rid of these people with their filthy habits and houses.

It is only necessary to point out the fact that the loathsome diseases which has already corrupted the blood of this nation to an alarming degree is fostered and propagated in detail by these vicious idlers; to young men to be disseminated in the purer circles of society. Their places of residence are the rallying points of cholera, yellow fever, small-pox and scarlet fever.

This is looking at the deleterious effects of our brilliant civilization only from one point of view. It is a mere glance at the physical and moral degradation wrought upon the poor by the unprecedented progress of the last half century. Its deleterious influence is scarcely less upon the more fortunate. The farmer, manufacturer and others who make as much money by machinery with the services of one man as could be earned by five, logically quintriple their wages, and can usually in a short time multiply this increasing income three, four or a hundred times. In this way they become rapidly wealthy, live in luxury and raise their families in idleness. In this country our notions of propriety are such that with most of us riches means luxury, effeminacy and vice if not extinction. Manhood, physically, intellectually and morally is of very difficult attainment in a state of luxury. This is so emphatically true that it is a matter of remark to meet with a young man of wealthy parentage who developed into an industrious upright and energetic business man. It is so common on the other for rich boys to become spendthrifts and worthless men, whose future employment seems to be to spend the money left them by the thrift of their parents that it is regarded as a matter of course. If their intelligence and morals however are of a high grade their physical debility make it necessary for them to nurse themselves through a short life of decrepitude. I think medical men will agree with me in the opinion that consumption and scrofula find very many victims among this kind of young men.

Dire as are the effects of a luxurious and idle life among the male portion of the community they are still more disastrous among the women of this country. The constraint of fashionable dress, the confinement to superheated and badly ventilated rooms, complete abstinence from healthful exercise, highly seasoned and inappropriate food and bad literature render their physical existence one of invalidism from childhood through the whole of their abbreviated lives. How many of the most profitable patients are found among such women is too well known to require more than a mere mention. The so-called better classes of our women require continual and tender care to shield them from the effects of even the slighter causes of disease and to prolong their lives into moderate longevity. Almost if not quite as beautiful, accomplished, etherial and as lovely as angels most of them are as incapable of filling the places allotted to them in this world as would be their celestial sisters. They are sources of constant care and solicitude to their parents while blessing with their presence their paternal home; and objects of unending indulgence to their husbands in their marital relations. It is necessary for them to drink the healing waters of some fashionable resort or bathe their delicate forms in the waters of the ocean for a part of each year to enable them to bear the light burdens of the balance of their annual round in domestic life.

This unfortunate class of young women have such exalted nervous excitability arising from their education and habits that they continually need nervous sedatives to enable them to sleep or enjoy society and probably nine-tenths of them resort to them habitually. Some of them partake of the more powerful as opium, chloral, chloroform, and alcohol in such quantities as will keep them in a steady condition as long as the nervous system will bear it. Some of them can get along for a time on the bromides of ammonium, potassium or valerian and asafœtida, but as life passes and the enervated functions waver they are obliged to resort to the stronger stimulants.

For similar reasons men resort to the various preparations of alcohol and gradually run into intemperance. Of the tons of opium, chloral, chloroform, the bromides and other medicines of this kind consumed in the country perhaps sixty-six per cent. are used in cases where the patients would be better off without them. And by far the larger amount of these pernicious drugs are taken without the advice of a physician and very often for their exhilarating effects alone. So soon as a hypnotic, anodyne, narcotic or stimulant is added to the materia medica it is appropriated as an inebriating agent.

The busy men, the men who do the intellectual work which contributes to and in fact makes the present state of civilization what it is; the authors, editors, divines, doctors, lawyers, inventors, manufacturers, traders and other business men are so stimulated by the ambitious spirit of the times that they are worn out while yet young, and die the victims of apoplexy, paralysis, softening of the brain, or some other of the manifestations of an overworked brain.

The rapid growth of cities is almost a peculiar feature of this century. It would be an unnecessary waste of time at present to give the statistics of their increase but we are all familiar with the very rapid growth of the European cites especially London and Paris. In this country, New York, the foremost city of the Union was what we would now call small fifty years ago. Now it and its environs contain an immense population. Philadelphia, Pittsburg, Cincinnati, Chicago, St. Louis, Louisville and New Orleans are large cities. The cities and large towns of this country contain probably half of the population. This aggregation of people in cities and towns is rendered possible only by the use of steamboats, telegraphs and locomotives. Stop the workings of the steam engine as a means of transportation and travel in this extensive country and the cities and large towns would fall to pieces. The food which now supports them could not be carried to them; even the food of inland cities could not be supplied, and certainly the people could not be clothed in the ornate raiment of the present day if it were not for the machinery with which it is manufactured.

This unnatural massing of people has brought with it many causes which very seriously disturb the hygiene of the race. Crowded tenements, underground residences, narrow, crooked streets and alleys keeping the sunshine and pure air from large districts, bad sewage, accumulations of filth, deficient ventilation in the more pretentious buildings and similar conditions in great variety have received much attention, and as far as possible are undergoing remedy at the hands of capable students of such works in the cause of public health.

Besides these more obvious and generally recognized morbific causes there are others to which less attention has been directed and even, until lately, entirely overlooked. I allude to causes which operate upon the nervous system through the five senses. It is trite to mention to an intelligent assembly, that we receive all our external impressions through the medium of the five senses. And it would be almost as superfluous to say that there is a gamut or scale in which the entire grades of healthy impressions are continued, and above or below which these impressions becomes morbific. We know that impressions may be so intense as to cause disease in the organs of sense and the brain, and the functions of the brain or the organs of sense cannot continue in a sound condition for any great length of time in the absence of external impressions. Another thing quite as apparent is that similar impressions of moderate intensity continuously and rapidly produced exhausts the organs of sense and tire the brain. This is the case if the impressions are similar in character or diverse in quality.

Now in large cities all our senses are overloaded with impressions severally adapted to them; and in conveying the results of these to the brain become impaired in their capacity or prevented in their accuracy. The din of battle often impairs the ear, the glare of intense or long continued light—the rapid succession of many bright colors lead to confusion if not loss of vision. The olfactory nerve will soon cease to recognize the strongest odor with which it is assailed, and the gormands know but little of the delicacies of flavor.

Among the most injurious of the conditions acting so directly upon the brain through the organs of communication is the sound or as we might more properly call it the *noise* of great cities, by heavy wagons, street cars, rapidly driven lighter carriages, the loud talk and imprecations of angry drivers, the scream of the steam whistles, the ringing of bells and many other means of making a noise so common, are to those rendered weak and nervous by modern habits, painful and confusing to a terrible degree. We might suppose that people would become habituated to these noises, and some of them do partially. Very few however can subject themselves to the most noisy parts of these great cities and not be uncomfartable, and I doubt if anybody can live in the midst of the most noisy of them without suffering. But to pass a few hours in such places during the active part of the day when we are prepared for and expect it is not the most trying condition under which the denizens of cities are placed. When we need repose we need quiet; a great city however is quiet but a few hours in the twenty-four. Long before the exhausted inhabitants have become restored by the slumbers of the night, the rumbling of wagons, the ringing of bells or the scream of the steam whistle interrupt their repose. Some may be so tired or so strong or so stupid as to sleep on during all this noise, but very many do not. Nervous women and delicate children too many nights sleep under such circumstances and losing rest become exhausted and diseased. The sick especially those sick with fevers and nervous disorders are made worse in consequence of the impossibility of sleeping amid such noise, and thousands of lives are annually sacrificed owing to the excitement caused by a disturbance of the delicate nerves of sound. I am sorry to say that in many places even the church bells become not only a disagreeable nuisance but causes of nervous diseases. The thunder and boom of the twenty ton church bell in the early morning awakens a large part of a sleeping neighborhood, while the sharp tones and discordant clatter of a chime often convulses the frame of the sensitive and sick, near whom they are sounded out to denote the locality of a rich church and the time of assembling of a fashionable audience. A suit for injunction in the case of the St. Mark's Church in a populous district of Philadelphia called out the testimony of such men as the venerable Profs. S. D. Gross and Alfred Stillé and the highly scientific Drs. Weir Mitchell, J. M. DaCosta and others. They testified that the ringing of its bells was a nuisance to the healthy people of the neighborhood and an efficient factor in aggravating, if it did not actually cause disease in the delicate and susceptible. Similar suits to enjoin the ringing of great church bells in London have been supported by many of the most scientific and reliable members of our profession in that great city.

Scarcely less disastrous are the harsh and to some almost unendurable impressions of the unrelieved sunshine which pours into some localities. The sheen of glass, bright metals, disagreeable colors, whirling objects, exciting scenes and disgusting sights that meet the eye in large cities impress both the eye and brain to a morbid degree, causing madness, convulsions and moral depravity to an extent not dreamed of until properly investigated.

Another source of nervous disease is always present in the thousand and one smells of large cities. How many localities are there in every large city where the disagreeable odors are so numerous that no olfactory organ can separate them, and no nose is great enough to comprehend them all. They are in some places so dense that they may almost be felt—so heavy as to require a Fairbank's scales to estimate their ponderosity. They creep along the streets and alleys into the doors and windows and settle around the beds of the sleeping and sick in such disgusting copiousness as to awaken the slumberer and nauseate the delicate even to emesis.

Such impressions, so numerous and intense upon the organs of the fine senses cannot fail to be the origin of nervous diseases and they much more frequently act injuriously upon diseases of this kind already existing. In large cities every thing is intensified to the utmost ability of the mighty theory which inhabits them. Every body, in earnest effort for success, eats, sleeps, thinks and acts under the pressure of rivalry. A desire for supremacy in reputation, wealth and display is the arm of the great mass of people who thus congregate. The feeling and play of sentiment are all of the same intensity and universal extent; jealousy, envy, hatred, regrets, sorrows, remorse, pride, all the passions that canker in the heart and burn out the nervous centres are known no where as in great cities. Cities are the hot-beds, in fact the only practicable habitation of the lowest vices in their most disgusting and destructive forms, drinking, gaming, and their sister vices with still more terribly blasting qualities. In the dark purlieus of cities are hidden theft, robbery, murder, rape, and a thousand congener crimes that cannot be covered up anywhere else. If these great whirlpools of iniquity and disease affected only their own inhabitants it were of less importance. But they attract the pure and good of the country and in their great surging circle swallow up and carry down with them millions who but for them would remain happy and healthy men and women.

Babylon is the great prototype of cities and the description of that scriptural abomination might be repeated as true of Paris, London, New York, Philadelphia and all the great centres of the world. And to-day such places are being created more rapidly than ever before as a necessary result of the unexampled aggrandizement of the civilized portions of the human race. Are there no means of arresting this career of mental, moral, and physical degeneracy? Or is it but one of the stages of civilization which will lead us to early and inevitable ruin? Is it not the blind headlong race of passion and ambition that will carry us beyond the point of redemption? Decentralization and universal employment seem to me to be the two conditions necessary to bring relief So much has been said and is being now suggested that little else remains for any one to say. The organization of our government renders it to a certain extent powerless to deal directly with the subject under consideration. While all the conditions of society have undergone an immense change, all its elements and institutions have advanced with unprecedented rapidity, until the American people are renowned for their enterprise and achievements, our government may be said to have remained at a stand still, if it has not retrograded since its first formation. When this country was sparsely populated, all its inhabitants industrious and to a great extent puritanic in their morals; when the people felt the obligation of a posse comitatus for the mutual support of law and order, our political organization was admirably adapted to its purposes. But I believe most thinking men agree that it is now inadequate to the task of dealing with the lawless multitudes that swarm in our large cities and roam in the country with the savage selfishness of beasts of prey. Our country has outgrown the government. It—the government—is entirely behind the times and must make rapid strides forward or fall to pieces.

Although the various benevolent institutions calculated to ameliorate the condition and bring about reform in the degraded and impoverished masses, are good temporary expedients, they fail to reach a tithe of those who most need their influence; and what is worse, for the lack of the strong arm of a regulating government they are subject to so many abuses that much mischief is likely to grow out of them. Their managers are too often actuated by selfish, instead of benevolent, motives; and having no adequate legal restraints pilfer the means entrusted to their care, and go unpunished for their crime.

Were the government ever so good and strong and our benevolent institutions administered ever so faithfully and disinterestedly they would still fall short of wholly remedying the evils spoken of.

More radical and effective remedies are necessary and perhaps there is no practical cure for them.

The drift of our social organization and the weight of great examples have educated the people up to their present bent and tendencies, and until their education can be replaced by a more healthy teaching we must get deeper into moral depravity, and the indigent, vicious classes must increase. One trouble, and it is the greatest of all, is, that the people are not contented with the simplicity and comfort of the country, every body seeks for princely ease and luxury. They love the locality where glitter and luxury may be seen and experienced; this is why they love the city. If the love of city life, which is now the great passion of almost everybody of low or high degree, could be replaced by a desire to enjoy the quiet comforts and beauties of nature instead of art, of the cool, shady, beautiful country, instead of the dusty, noisy monotonous, selfish city, the problem of social reform would be half solved.

This sentiment is not new. More than one loyal ruler has measured arms with this monstrous evil and probably no one has been completely successful in eradicating it. A conspicuous example is afforded by Roman history. When Augustus assumed imperial attributes, he found the people of the empire carried away by the attractions of the eternal city. The country did not possess enough of the spice of life; it was too tame and insipid. The people were educated to the love of pomp, splender and pageantry. Like the people of our time, those who could not riot in riches would rather live in squalor, where they could enjoy the stimuli of unlicensed passion, and die paupers rather than enjoy the more temperate blessings of a country home.

Augustus endeavored to overcome this ruinous disposition in the people. He encouraged the propagation of the simple philosophy of the Greeks; improved the country by inducing the wealthy Romans to build elegant villas in it, and to partake in the tilling of the soil with their own hands. In these various ways he beautified and rendered attractive the rural districts of his empire. The writers of his time were engaged to educate the people to love the country by portraying its salubrity beauty and fruitfulness. Among them was Virgil whose writings have become immortal by reason of their sublime pathos and the grandeur of their description.

He sang of agricultural pleasures; he drew glowing pictures of the green fields, the waving grain, cool shady groves, the delicious aroma of the flowers, the refreshing and energising breath of the newly upturned soil, the lowing herds, the ruddy husbandman, the blushing maidens and happy housewives of the agricultural districts.

He dignified the shepherd and his vocation by singing of the pastoral duties and pastimes of Apollo, and peopling the groves, brooks, and dells with gods, nymphs and fairies. Augustus thus brought to bear upon this vicious and unnatural love of city life every means in his power calculated to eradicate it from the minds of the people.

The energetic, sacrificing, loyal and sublime effort of Augustus to reform the Romans of his time, has within it a great principle and might serve as an example to the rulers of modern times. It recognizes the nature of the evil, the fact of its having taken hold of the affections of the people, and the necessity of applying the real remedy, that of educating the masses to think and feel rightly upon the subject.

Art. 2.—The Instinctive Operations of the Human System, and how they may be utilized in the Management of certain Diseases, and more particularly in Functional Intestinal Constipation.

Read before the Tri-State Medical Society in Evansville, Ind., at the Meeting on Oct. 16th, 17th and 18th, 1877.

By JAS. F. HIBBERD, M. D., RICHMOND, IND.

In the great domain of Practical Medicine there is one department that, in my judgment is not sufficiently cultivated, not that its culture is neglected entirely, so far from that there is not a treatise, and perhaps not a hand-book in the practice of medicine that does not make mention of the subject, and possibly there may be monographs that treat of it exhaustively, but I do not now call to my thoughts anything in the literature of the profession that discusses the matter in the light in which it is desired to present it to your attention on this occasion.

I allude to the proper training and measurement of the instinctive operations of the human system with a view to the maintenance of health and its restoration when lost. It is quite likely the phrase "Instinctive Operations of the Human System" may not at once convey to every one's recognition the precise idea I have in my mind and wish to include in the words, and perhaps, therefore, it may be best to more clearly define my meaning by illustrative examples, because it is of prime importance that in the very beginning both author and auditor have a common understanding of the exact signification of the leading terms made use of in laying the foundation of the lesson proposed for study.

As soon as a human embryo fetus becomes an infant by extrusion from the maternal genitalia, on the instant it breathes and cries and both these operations are denominated instinctive because they are performed by a living being from unreasoning impulse, unconsciously and involuntarily. The operations of defecation, micturition and nursing which follow in early succession are of the same nature.

These several operations continue through life and are always in some measure instinctive, though the breathing may be controlled and modified within narrow limits by the will; the cry is transformed into language and largely under the denomination of volition, defecation and urination are in the same category but more frequently and surely assert their prerogative of instinct; and the taking of food may become absolutely subject to the will, though the sense of hunger is permanently instinctive.

Besides these, the unobserved operations of the infant such as the circulation, sanguineous and lymphatic, digestion, constructive and destructive assimilation, and the whole service of cellular activity are instinctively performed and continue so through life. And, moreover, the cerebration of infants is done wholly outside of consciousness, purpose or volition, and is therefore, also, an instinctive operation, and much of the cerebration of adults is of the same character.

Possibly all activities of the human system that are normally performed during natural sleep might without violence to the just import of language, be classed as instinctive operations.

Doubtless this is giving a more latitudinous definition to instinct than most of you have been accustomed to entertain, and bringing within its limits many activities that are usually covered by the term vital, there being a sort of conventional agreement that instinct is an attribute of vitalized matter in animal organizations so nearly allied to reason that it may rightfully be regarded as a brute, or blind brother of that highest of human faculties. This view draws support of some strength from the scientific idea that instinct is inherited experience, it apparently being taken for granted that an experience acquired by an animal in such wise and of such character that it may be transmitted to posterity must have been received, assorted and valued by a process of reasoning. One may adopt this conclusion if allowed to entertain the cognate idea that reason and instinct are not simply allied, but are really different phases of the same thing, the distinction being in degree or quality and not in kind. If it were allowable to make use of the physicians terms to illustrate immaterial things, the physiologist might say that reason and instinct are allotropic states of intelligence as the chemist declares diamonds and charcoal to be allortopic states of carbon.

I will venture the prophesy that when the truth in this behalf becomes established it will be found that all vitalized matter whether animal or vegetal, is endowed with the ability, as one of its vital attributes, to adopt itself, within certain limits, to surrounding and influential circumstances for the purpose of maintaining its existence and procreating its kind. Now this attribute in a vegetable is called adaptation to the environment, as when a sprouting potato in a dark cellar stretches its long pale vine toward the distant window to more thoroughly secure the vivifying light; in brute animals it is counted instinct, as when a squirrel in the fruitful autumn gathers and stores up nuts for his food in the barren winter; and with man it is dignified with the title of reason, as when he builds and sows and reaps, in the vigor and age of his manhood that he and his dependents may be housed and fed when he becomes decrepid or superannuated. Is there not logic, sound and true, in the conclusion that these three acts are alike in kind and nature, are in fact but different quantities and qualities of the same intelligence, manifested by organizations in different planes of vitalized matter?

When I was a student of medicine a part of my exercise one summer was a daily walk through a field of growing corn within easy distance of the village office of my preceptor. When stalks of corn have grown to a certain height they throw out what are known as support or brace roots some four inches from the ground and entirely disconnected from the ordinary nourishing roots which are under the surface. If the stalk stand straight and undisturbed these brace roots numbering from 16 to 24 spring out all around the stalk at about equal distances apart and grow down to the ground apparently for the sole purpose of supporting the stalk and fruit in the vertical position. Now it chanced that a storm came over this field just before the brace roots made their appearances and some of the stalks of corn were left standing vertically and others were left inclined at various angles. The brace roots developed at the appropriate time, and in the vertical stalks they were distributed all around them as usual, but in the bent or inclined stalks the brace roots all came out on the lower side and thus placed their united supporting strength just where it would do the most good. This seemed to me so much like a modicum of intelligence that the incident fastened itself indelibly in my mind and was the starting point and incentive to my study in the premises, and may be regarded as the foundation of the conclusions I have reached.

This prolix exordium may seem like a very long avenue to the gate of a very small castle, but it has not been without an aim that I have traversed the premises in various directions, as the sequel will develop the fact that I rely on the correctness of my views regarding tha essential character of instinct as the chief support of the practical value of the observations on the treatment of certain forms of ill-health that it is the main purpose of this paper to discuss. I deem it profitable in fact to extend these proemial remarks still further.

Broadly stated, the idea I wish to inculcate is that all activity in the human system is guided by reason or by instinct, and these are not distinct in kind but only in quality or degree, being but different manifestations of intelligence, sometimes complimentary and always correlative; that some activities that are instinctive in infancy are subject to reason in the adult, as the taking of food and making of vocal sounds; that food is procured, prepared and partaken of by volition, but as soon as masticated and carried beyond the fauces the remainder of deglutition is performed by instinct, as is gastric and intestinal digestion, absorption and assimilation; that instinct is the vital law that maintains life and leads to death; that many of these instinctive activities may be trained far away from their original state as when the system is trained to bear with comfort so much opium at a dose that one tenth of the quantity would have produced fatal poisoning before the training began—as when the arctic explorer by degrees acquires the ability to bear for months, without serious suffering, a temperature so low that it would have killed him in a few hours if it had come upon him suddenly in his temperate home; that when a child is trained exclusively by quakers, as an adult he will hold to the quaker faith, if trained exclusively by jews he will be a jew, if trained exclusively by thieves he will be a thief; that the intellect of a child may be trained so that it will compass the problems of military science, or of theological science, or of natural science, or of social science. It is seen therefore, that these instinctive operations pertain to the physical system, to the moral nature and to the intellectual organism. And it must be apparent that these truths lie at the very foundation of scientific practical medicine, and are acted on continually either rationally or empirically by every serviceable physician.

Now let us study a practical application of these theoretical views in regard to sleep.

A vendor of fresh meats in ill-health under my care wakes up every morning at 3 o'clock because, for years that has been the hour at which he arose when well to attend to his business. Himself, his attendants and his physician desire that he should sleep all night, but his long trained instinct to awake at 3 o'clock, for the time being overrides all efforts of his will.

An old farmer also ill and under my attention, awakes at 4 o'clock every morning against his will and my wish simply because that was his rule in health.

F. M., is a laborer in an oil mill and his daily task begins at 12 o'clock at night, and ends at 12 o'clock noon. He does not work on Saturday night and for a long time after he began his present engagement he could not sleep after midnight Saturday, and could scarcely keep awake after noon on Sunday, because of the established habit of awaking and sleeping respectively at these hours. Established habit is but another name for trained instinct, and it can readily be inferred that attention to such a condition must be given in many cases of illness in order to secure the best results. For example: About fifteen years ago a farmer's widow became my patient with insomnia. Her habit was to go to bed about 8 o'clock in the evening and rise at 6 o'clock in the morning, taking a nap during the day, thus attempting to sleep about one half of each twenty-four hours. At this time she had broken up housekeeping and was living with her daughter, on a farm, with nothing to do. She had been one of the early settlers of the country, and with her husband had opened and improved a farm, practiced economy, raised eleven children and become rich. She was now seventy years old, and for fifty years had worked from sixteen to eighteen hours a day and slept as much of the remainder as the cases of maternity would permit. Formerly she had slept soundly all the time she could devote to sleep, now she fancied herself ill because she could not still sleep all the time she could devote to it, albeit the time was now twice as great as formerly. The habit, the trained instinct of fifty years cultivation was not to be thus overcome in a moment at the dictation of desire. The drugs she had taken to enforce sleep were the opposite of useful, they left her worse than they found her. In trying to compel too much sleep she obtained no satisfactory sleep at all. A perfect cure was brought about by a prescription requiring to approximately conform to her longtime habits, to go to bed at 10 o'clock, rise at five o'clock next morning, take out-door exercise during the day looking after the poultry and have in door occupation during the evening knitting stockings for grand-children.

This case may be allowed the character of a representative of a large class of afflictions having their genesis in like causes, which every practitioner will find to constitute a considerable percentage of his patients. Drugs will not cure them, nor will any treatment that does not give due consideretion to the trouble bring relief or be worthy of an enlightened physician.

Medical men all doubtless find abundant opportunity to avail themselves of the habits of their patients in their efforts to produce sleep in those who are made wakeful by feverish perturbations or painful disease, and if no special habits exist in this relation, attention is given to the fact that most persons naturally incline to sleep within the three hours next preceding midnight and the exhibition of soporifics is governed accordingly. Even in the wild mania and frantic delusious of delirium tremens, it has been my custom for years to ascertain the usual sleeping hours of the patient, and by making my efforts of art to induce repose, tally with the ordinary course of nature I have succeeded in bringing rest without danger from drugs, in less time, and with scarcely a tithe of the medicine often administered for that purpose when the natural tendencies of the patient are ignored.

Resisting the temptation that this wide field offers to discuss the practical bearings of the instinctive operations of the human system in regard to many important functions your attention at this time is solicited to the subject of functional intestinal constipation. While writing the preceding page an unmarried Irish woman aged 23 years claimed my advice for a long list of annoying symptoms. She had head-ache, and side-ache, and stomach-ache, and groin-ache, variable appetite and her bowels moved about once a week. She had been a sales-woman in a toy-store but had given up her situation. Young ladies are especially obnoxious to this disturbance but it is confined to no sex and to no age. It is met with constantly in practice and is the parent and supporter of a legion of ills irksome and annoying beyond conception, and often of serious import. Easily relieved temporarily, it is so difficult of radical cure as to constitute an *opprobrium medicorum.* Yet I believe its permanent cure is quite within the compass of medical knowledge, and where failure follows upon our efforts it is either because we have not pursued the right method, or what is perhaps more generally the case, the patient will not follow our prescriptions unto the end. And this is a disorder where the final success of the treatment in uncomplicated cases depends much more on the patient than on the physician. In fact, without the earnest, intelligent and faithful coöperation of the sufferer, it is my judgment that the most valuable medical attention can only yield temporary relief. The etiology of the trouble may be written in a few words: Neglect, through ignorance or recklessness, of the demands made by the instinctive operations of the system. The therapeutics of the disorder may be as briefly stated: restore the instinctive operations of the system to their normal place and power.

Take the case of the young Irish woman already mentioned, to illustrate the development of the disease. Until she was twenty-one years old she did house-work and was healthy. Every morning when her sensations pointed to the propriety of stooling she attended to it at once, there was nothing to interfere. Taking a position in the toy-store she had the same morning sensations at first, but it often happened that attention to customers caused her to postpone the duty for a time, in the beginning until the first available moment, but, as her organs became more and more trained to delay, the demand was less and less urgent until finally all desire to evacuate the bowels was lost until secondary troubles would arise and compel attention to the natural duty.

This is a fair sample of the genesis of functional constipation. It grows out of the violation, voluntary or compulsory, of the physiological law. It is rarely found in young men or women, indeed in either sex at any age, while they are engaged in active labor with such surroundings as offer no stumbling blocks to their giving heed to the normal call to stool whenever it is made. Not that the active and industrious are exempt because of their industry, but because they have a pleasure, rather than otherwise in obeying the physiological impulse.

Women compose the major part of the patients of this class and there is a professional, as well as a popular belief, that their greater suffering herein arises out of their sedentary life. Perhaps this is true, but it is questionable to say the least, except in so far as it lies in the fact that their mode of life possibly makes the demands of nature in this direction less urgent in them than in men. But it is a fair presumption that the requirements of fashion, of dress, of company and the behests of false modesty, especially in traveling and among strangers, in ladies of all ages induce them to ward off the admonition they feel to evacuate the bowels, and to procrastinate until they establish disease.

The functional intestinal constipation under consideration is never an idiopathic disease, it is always due to the neglect of physiological requirement, thereby establishing a pathological habit which continues until rectified by the victim.

The passage of the contents of the intestinal canal along its windings is an instinctive process not subject to our will. The effete matter is passed into the rectum and after the lapse of a certain period, or the accumulation of a certain amount of fecal matter, there comes to the consciousness a sense of desire to evacuate the rectum, and here for the first time the will becomes an active agent in the process. This agency is not one of absolute control, but within considerable limits the evacuation is subject to the volition of the party. If the desire to evacuate be acted on properly, it will be manifested regularly as the necessary condition recur, but if the evacuation be resisted within the limits of voluntary control, these limits will be more extended, the desire will be less and less urgent until as a direct sensation it no longer appears, and the party thus behaving has passed from the physiological state and the condition of functional intestinal constipation is established. This process of resisting the normal inclination to stool takes place under such varied circumstances and with such diversified sensations that it is not an accredited truth with every good doctor that this is the only way in which it ever arises, but while the writer sets up no claim to infallibility he feels that theory, physiological science and clinical observation warrant him in making the statement.

This form of constipation and its associated evils is peculiar to the human race. As a general rule humans evacuate their bowels but once in twenty-four hours, while all other animals, so far as my knowledge extends, discharge their feces several times within the same period. Then, moreover, the human fecal bladder—counting the rectum the fecal bladder—occupies an almost virtical position both in standing and sitting, while in most other animals the final bowel is nearly or quite horizontal in any natural position of the body. This position of the gut in man and the long time it is required to hold its contents necessitates extraordinary vigor in the sphincter that protects the outlet and is its sole guardian.

In some cases of this constipation it is probable that peristaltic action of the bowel which should bear on its contents, as they are fitted for that purpose, to the rectum, may cease before the service is complete and allow the effete material to rest in the sigmoid flexure, or possibly in the descending colon, thereby causing more or less disturbance in the normal functions of the other abdominal and pelvic viscera. When the feces are carried directly to the rectum and are retained there beyond the appropriate time they are apt to have too much of their fluid constituent absorbed, leaving them in an indurated condition, in which state they interfere with the circulation in the hemorrhoidal vessels and generate piles, fissures, inflammations and other serious lesions about the anus. So common indeed is disease of some sort about the anus, and chiefly due to inordinately retained feces that I fancy one is entirely within the bounds of truth to declare that fully two-thirds of the civilized human family who have arrived at the age of fifty years have suffered some form of disease at the oulet of the bowels. Doubtless this very general prevalence if disordered fundaments is in some part due to heredity, but mainly to the individual ignorance or carelessness of the victims. Horses or cows are not troubled with hemorrhoidal tumors, nor are fowls the victims of anal fissures, although I believe in them the cloaca is the common outlet for feces, urine and eggs.

So common and serious are lesions of the anus in man that one is almost tempted on superficial observation, to conclude that there is something a long way short of perfection in the organization of this fundamental part of the human system, but closer scrutiny of the affair will lead to the conviction that the rectum and its appendages were made all right, and are still well enough in rural situations and among simple unsophisticated people; the derangements and alleged imperfections of the region are due to the regime of civilization and the prevalence of modern improvements in mansions and in manners; so that on philosophic investigation nothing will be found in the premises to militate against the idea of the omniscience of the Creator, nor the universality of the sublime doctrine of the survival of the fittest.

It must not be inferred that there is no cause for disease of the anus other than functional intestinal constipation. There are diverse other causes, but it does not come within the purview of this paper to discuss them; but while it is admitted that anal disorders spring out of various conditions it is believed that the major part of them are due to constipation, and not only does this condition generate most of the diseases of the rectum and anus, but it is the fruitful parent of many pathological conditions in various parts of the body. In women the loaded rectum in the pelvis and superincumbent colon often act mechanically to produce uterine disorders, and in both sexes great disturbance in the abdomen arises out of the same cause. The failure to excrete the effete material that has been deposited in the intestinal canal gives rise to indigestion, anorexia and a legion of dyspeptic symptoms; so-called biliousness is a prominent attendant; headache, palpitation and innumerable and indescribable nervous disturbances come on apace; ill-temper with incapacity for mental as well as physical work are among the secondary accompanyments of functional constipation, and it ends, sooner or later, if left unrelieved, in a complete wreck of the health of the victim. When I was a young doctor a middle aged married lady was my patient for some weeks. She was confined to bed one day each week with what was termed sick head-ache, being cerebral pain with utter prostration, vomiting and loathing of food. She had two days of preliminary disturbance with simple anorexia, the day after her attack she was too much debilitated to rise, and could digest only invalid food, and it was the third day after the attack before she could be around, looking after her household affairs. Here were five-sevenths of her time that she was ill, and the remaining two-sevenths she was but a shadow of her former self. For this wreck of a good woman there was no appreciable cause but the long continued functional intestinal constipation to which she had been a victim for years.

It is within the knowledge of every medical man that functional constipation is frequent and troublesome, but only those who have given the subject special attention have realized the full extent of its prevalence and the amount of ill-health it carries with it.

The indications of treatment of functional constipation have already been stated and are quite plain and simple, to-wit: restore the instinctive operations of the system which have been lost or suspended through ignorance or neglect.

In carrying out the therapeutics of this distemper the role of drugs is of secondary importance, the main reliance for success has to be placed on the intelligent and persevering assistance of the patient, indeed, without such aid, wittingly or unwittingly given, no success can be predicated of any treatment whatever. And the role of the patient is to make unfalting efforts to bring back the regular evacuation of the rectum to the times and periods that obtained before the healthy order of things was lost. By inquiring the medical attendant can usually ascertain what was the healthy order before derangement began, and it will be a necessity for him to insist that his patient shall so conduct his part in the management that the instinctive desire to stool shall be brought back in time and manner to its original status.

Over twenty years ago a middle aged man came off of the sea, having traveled long and far in ships, had been subjected to much irregularity in living and particularly wide variations in quality and quantity of food, with the not unusual result of constipated bowels and a fissured anus, one among the most painful of maladies. It was ascertained that the patient's habit when well was to have a stool directly after breakfast and he was given emphasized instructions to make an effort to evacuate his rectum at that time every morning, and not to feel discouraged if he did not succeed, but, on the contrary, to persevere in the attempt with the same regularity as if success crowned every trial. His bowels were gently opened to begin with by compound rheubarb pills, and from time to time a laxative of equal parts of sulphur and cream of tartar was administered. The fissures were treated locally by simple lavation and anointing with olive oil. His diet was to be at his pleasure with the injunction to scrupulously avoid whatever his experience had taught him had a tendency to constipate, or even to produce flatulence. For many days there were no signs of amelioration. When the feces did pass, the fissures were torn open with a degree of suffering that the patient characterized as agonizing. It reminded one of the story told by Quain of a London surgeon who had a young man call at his office for advice about his anus. The surgeon had him slip off his pantaloons and lean across a chair for examination. As nothing outside presented an unusual appearance, the surgeon placed his thumbs and with a rather quick movement forcibly opened the anus, and as he did so the patient gave a piercing cry, sprang over the chair and out of the open door into the street, *sans culotte* as he was, like a raving madman. Bringing in his trembling victim, the surgeon, by gentler methods, secured a thorough inspection, and found that by his first rude proceeding he had torn open some fissures in the mucus membrane lining the sphincter.

Notwithstanding the suffering, my patient held his faith and with it the works and in a few weeks he had his reward, his bowels felt the force of faithful training, because regular, the matutinal instinctive desire to stool returned and was religiously observed, the feces lost their hard, irritating consistence, and the horrible agony of his fissures subsided. His health was restored and in this respect has continued good until the present, with only such occasional disturbance as the best regulated fecal evacuating apparatus is subject to. I am apt to believe that no management of this case of constipation that did not have this training of the bowels as its most valuable factor would have been of any permanent avail in an effort at restoration, and certainly no amount of skill expended in attention to the anal fissures would have afforded relief until the alvine evacuations were brought into normal condition, and as soon as this was accomplished under the treatment instituted, the fissures ceased to trouble.

Other cases of successful management might be detailed, but the narrative given contains the whole story, there is no value in repeating details after enough is given to illustrate the principle sought to be inculcated.

But will this practice always succeed? I feel warranted in saying that it will in all cases where it can be completely carried out. Failures will frequently happen, for unfortunately many persons who have seen no error in the neglect to maintain the instinctive operations of the fecal evacuations by which disease is engendered cannot be persuaded to persevere in the prolonged, and to them seemingly useless, efforts that are prescribed for this relief. They have no faith, and it is vain to hope for works, and without both faith and works scybalæ will form, and accumulate in human bowels.

A lawyer, suffering from constipation, followed with diligence the instructions given to attempt the evacuation of his rectum every morning within thirty minutes after he had breakfasted until some success had been reached in regulating his bowels, and some relief had been obtained from his acid stomach, his aching head and his blunted intellect. At this stage a client with important business awaited the attorney at breakfast, and during the hour's interview he gave his client immediately after his morning meal he had unmistakable intimations from his rectum that there was a readiness for the desirable morning service, and when the client retired the intimation was still feebly there, but the lawyer being anxious to commit to writing some facts while they were fresh, and mentally promising to answer the summons presently, wrote for an hour and then found not only that the inclination to stool had disappeared, but also that he had no present ability to recall it, much to his chagrin, and this disability continued during the day the whole affair making an ugly break in his progress toward restoration. His faith in the plan of restoration was sound but he failed in works meet for success, and for the time being blasted a fair hope that budded with bright promise. And the moral of the case is that nature is quite willing to have her instinctive operations trained for good ends, but we must follow in the line of action of her laws, with attention to the time required to mold her plasticity to our liking, remembering that her laws are immutable and that failure will always attend our attempts to warp them to our convenience, or make them subservient to our whims.

During the present season a married lady called on me to treat her for prolonged constipation of the bowels. By the use of cathartics aided by simple enemata the ancient feces were expelled from the rectum and colon. Then she was instructed in the method of training her instinct in operations, and laxatives, and a modified diet, were prescribed to assist in carrying out the instructions.

As long as the medicine opened the bowels at satisfactory periods she seemed quite content with my plan of cure, but as soon as the laxatives were withdrawn or lost their influence, she would make no effort at stooling because she felt no impulses thereto, and my utmost powers of persuasion were not equal to the task of convincing her that practically the essential virtue of management lay in the continued efforts, under whatever discouragements, to produce dejections by natural powers until those powers were re-established in their wonted service. My patient declined to do the work herself, she came to me for medicine to do that, and while her faith in drugs to do this service was as a mountain, her faith in the value of individual effort was less than a mole-hill. So I failed in my treatment. And this is the rock on which our bark will so often be stranded. Patients have the testimony of all the makers of cathartic nostrums that their wares will radically cure constipation, and this testimony is confirmed by every quack that is consulted, and it argrees with the patients preconceived opinions and is flattering to their hope of early relief, while on the other hand they have no evidence touching the true method but the assurance of a sensible physician who promises relief only after the lapse of indefinite time filled in with watchful and exacting attention from themselves. They follow the sage advice of the politic Weller, fall in with overtures of the biggest crowd, continue to swallow cathartic drugs, grow worse from year to year and live a miserable existence.

As germain to the general subject we have been studying I wish to occupy a few moments in calling your attenion to the possible perpetration of errors by the inappropriate use of significant terms. We speak of the force and power of disease as if it were a distinct entity, such forms of expression having descended to us from the time when health was supposed to be a good spirit inhabiting, and generally controlling, human bodies; and disease was the great adversary, an evil spirit, constantly struggling to oust health and take possession, often partially succeeding, which constituted illness, and always, finally, obtaining complete mastery, routing health by sudden assault or by slow approaches, causing death.

This fallacy has completely faded from the enlightened professional mind, but it lingers with many a layman still, and we should contribute largely to a better popular understanding of the legitimate application of remedies, and the true status of the qualified physician—now most humiliatingly misapprehended—if we were to abandon glittering generalities and confine ourselves to the use of such exact terms and phrases as would convey to the popular mind the fact that health and disease are but the differing phases of the same vital law that maintains the existence of the species perpetually, the life of the individual for a time, and leads to death in the end inevitably.

But it is the use of misleading terms in connection with the service of medicine that I desire to address myself to at this moment. We say that a blister-plaster draws, that aloes acts on the bowels, that veratrum controls the heart, that aconite allays fever, and that opium suppresses pain. Now, such expressions convey to the uninitiated the idea that these drugs contain an inherent force or power by virtue of which they act on the organ, or part of the system, to which they are addressed and compel it to perform the appropriate service, and I am apt to believe that there are still some of our professional guild who are not completely divorced from this view of the role of remedies in the practice of physic.

A little examination will suffice to convince that it is an erroneous view, untenable in the presence of known and acknowledged facts.

Medicines produce no effect in dead bodies! Ipecac will not cause emesis in a corpse! Jalap will not purge a cadaver! All remedial agents must have living and sensitive tissues in which to excite action. It is therefore obvious that the influence of a medical agent is exercised through a quality in such agent that induces a change in the vital activities of the tissues and not through a force or power inherent in the agent that it exerts on the tissue.

There is a radical difference between a quality that excites and a force that executes.

Ipecac in the stomach extends no inherent force that compels the stomach to reject it, but its presence in the stomach causes the vital forces concerned to take such action as to reject it; jalap has no quality that excites emesis, it passes through the stomach, but excites increased vital activity in the bowels and catharsis is the result, but this is the effect of an inherent quality in jalap, not an inherent force.

Very clearly then in these instances the drugs have qualities that are offensive—the ipecac to the stomach, the jalap to the intestines—and their presence excites the instinctive operations of these organs to get rid of them. And the whole doctrine of the *modus operandi* of medicines is embraced in the idea that by the presence of the remedial agent the vital activity of the part effected is so altered that an increase, a decrease, or a perversion of such activity is the result, and this is all accomplished without the exercise or existence of force or power in the agent itself.

The corollary is that all medicines are in fact, either with or without knowledge, addressed to, and perform their good service—aye and their bad service too—through, the agency of what has, in this essay, been designated the instinctive operations of the human system.

Art. 3.—.Zymotic Diseases.

A Paper read before the Grant Co., Ind., Medical Society, Oct. 16th, 1877, by

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The term zymosis is desived from the Greek *Zumoo*, "to ferment;" and is applied to diseases in which there is supposed to be a morbific agent in the blood which has the action of a ferment; this from the Latin *fermentum* from the verb *ferreo*, "I boil;" and means internal or molecular motion from heat or from chemical action. Such action may result from chemical affinity or, probably, it may be catalytic. The term zymosis, as used in this paper, is intended to include all diseases in which the active agent is a poison in the blood; either produced by, or producing zymotic action.

Characteristics.

Such diseases while presenting many characteristics in common with other diseases have distinctive peculiarities of their own; and there is also among them, some similarity and great diversity. In some of them the temperature rises excessively high, while in others it rises but little above or even falls below the natural grade. Most of them have a period of incubation; that is, a definite period of time elapses after contamination of the system before the commencement of the active stage of the disease. All of these diseases are to some extent periodical and most of them are distinctly so. Some have exacerbations and remissions or entire intermissions at certain definite intervals; and most of them have a definite period of time for increase, a definite time for the acme, and a definite time for decrease and disappearance. In other words they are self limited. These characteristics of periodicity and auto-limitation belong also to the local inflammations and irritations which are associated with zymotic diseases. Another characteristic of a portion of those diseases is a tendency to debility and prostration. Many of them are adynamic from the commencement, and others become so early in their course; and in some, the tendency to extreme prostration or collapse is most marked. Many of these diseases are endemic; their cause existing or originating in certain localities; and many of them become epidemic; and most of them are to some extent, or in some way, contagious; the liability to become epidemic depending on contagiousness.

None but zymotic or parasitic diseases become epidemic, because, no others are contagious. In these diseases there is always more or less spanæmia; the blood being poor and generally containing organic substances or chemical compounds, which are foreign to it; and, depending on this cause, there exists in many cases a cachectic or depraved condition of the system, affecting solids as well as fluids. Another feature of a part, if not all, of these diseases is that they destroy or modify the susceptibility of the system. Many of them do not, except in rare cases, attack the same person a second time; and in the few cases in which a second attack occurs it is very mild. Some of them do not protect against a second attack; but all or nearly all modify or diminish susceptibility.

What Diseases are Zymotic?

About some diseases belonging to this class there can be no doubt; but the nature of others is very obscure, and it is often difficult to determine whether a case is of this character or not. The following I believe are now so classed. All the exanthematous and malarial diseases, cholera, erysipelas, pernicious puerperal fever, diphtheria, pyæmia, septicæmia, plague and typhoid, typhus and relapsing fevers. Also, there is good reason to think that there is zymotic poisoning in rabies canina and syphilis; and, I believe, in the cachexy of scrofula, phthisis and cancer. From the researches of Dr. Pepper it seems probable, that in what is termed Addison's disease, there is zymotic poisoning; and there is evidently blood poisoning or disease of the blood itself in leucocythæmia and pernicious anæmia.

Nature of Zymosis.

On this point there is yet, I think, a great lack of knowledge. The poisons causing these diseases are so occult, attenuated or transparent that they have not been discovered; or if discovered they have not been recognized. Malaria, (known only in name) bacteria and pus have played conspicuous parts in the investigation but they have failed to fill the requirements of the case. Bacteria especially the bacteria termo and micrococcus, are known to be associated with some of the most malignant diseases. Dr. P. L. Panum, however deduced from observation and experiments that these fungi are not poisonous to the human system; but that they are readily decomposed, and their decomposition generates a chemical compound, somewhat analogous to the vegetable alkaloids, which is the blood poison; and produces the phenomena of zymotic poisoning. It is probable that this is a clue to a solution of the whole mystery; and that in each zymotic disease such a poison, so produced, is the toxic agent. It is evident that these diseases with their varying characteristics could not all be produced by the same poison. And it is probable that there are as many such poisons as there are zymotic diseases; each producing its own specific disease, and in contagious cases, each case of disease reproducing in turn its own specific cause. These poisons, probably, like the vegetable alkaloids consist of carbon, hydrogen, oxygen and nitrogen; or only the first three; and differ from each other, chemically, only in the relative proportions of these constituents. That such poisons should differ so much in their pathological effects is no more strange than that quinia, morphia, strychnia, etc., should differ in effects as they are known to do. These compounds being in complete solution and intimately blended with the blood could be detected only by quantitative analysis; and then as the proportions of these constituents may differ in the blood itself, the presence of the toxic compound could not be positively demonstrated. The principal physiological effects of zymotic poisons seems to be on the nervous system; affecting sensation and the motor and organic forces; deranging or destroying the functions of all parts and especially of secreting organs; and so do the toxic effects of the poisonous alkaloids fall upon the nervous system producing similar effects. This is the main fact on which the air castle of Homeopathy rests. Another fact, which also is used as a support to Homeopathy, is that most of the vegetable alkaloids and most of the zymotic poisons affect primarily, preferably and often exclusively some particular organ or tissue of the body. These blood poisons are generally generated within the body; but it is probable that they may be sometimes generated out of the body and afterwards enter. Facts seem to me to warrant the following conclusions, although, I am not aware that they have been taught by any one. The decomposition or disintegration within the human body of tubercle, of cancerous structure, of pus, of malaria, (consisting of vegetable spores) of bacteria; probably, of any unstable organic compound in the blood, produces a specific poison; each morbid material producing its own peculiar poison; which gives rise, in its own order and degree, to the phenomena of disease, through its action on the nervous system.

Causes.

The causes of zymotic diseases are about as numerous and diversified as the diseases themselves. For the purpose of description let us divide them into four orders; each relating to a certain period in the history of the disease. The causes then are first, predisposing; second, primary; third, mediate; and fourth, proximate. The first is an inherited or acquired weakness, or a lack of health, constituting hyper-susceptibility. The second consists of organic matter received from without, or abnormal and unstable growths or proliferations formed within the body; and which are deleterious only as foreign bodies and not as poisons; until, by their decomposition within the body the third order is formed which consists of subtile chemical poisons which circulate in the blood and produce the fourth or proximate cause which is a depression, weakening, loss of force or of vital energy in the nervous system resulting in pain, heat, debility, prostration and loss of function which constitutes the disease. Hereditary tendency to certain forms of disease has long been recognized. This does not constitute a state of disease but only an inclination or unusual susceptibility thereto; consisting, probably, in functional weakness of some portion of the nervous system: This, and debility, do not really constitute a pre-disposition to contagious diseases; but, only, a lack of normal power of resistance. Zymotic diseases do not arise spontaneously, often, if at all; but some persons are much more susceptible, and some circumstances much more favorable to them than others. Of the second order or primary causes we have a large number and a great diversity. Malaria is probably of this character. This hypothetic cause of a large class of fevers has long eluded detection, although the phenomena and conditions attending its formation, inception and effects have been carefully studied and described. Dr. Salisbury it is true claimed to have discovered, described and demonstrated it. But a large proportion of the profession have declined to accept his conclusions, probably, because he was an American. Now, however, Dr. Lanzi of Rome claims to have made a similar discovery in the famous Roman Campagna and Pontine marshes, so celebrated for the abundant production of malaria. Dr. Lanzi finds an abundance of black granules in the cells of the decaying algæ which is identical with that found in the livers and spleens of persons suffering from malarial cachexy as he has proven by growing Zoögloca-like vegetation from the pigment of malarial livers. These granules which form in vast numbers during the decomposition of the algæ are scattered in all directions—borne upon the winds. According to Dr. Lanzi's views they possess the properties of a ferment, and he considers them identical with the pigmented sphero-bacteria of Cohn and the bacteridium terminum of Schrœter; and these "little jokers" are probably the primary disease. Minute fungi of various shapes and sizes form in the fluids of a dead body; and in connexion with certain diseases, in living bodies; but whether as cause or as effect of the disease has not been positively determined. These fungi, described first, I believe, by Prof. Cohn and since by others, have received various names in accordance with their shapes and appearance. Some of the most common being called bacteria (rod shaped), sphero bacteria or micrococcus (round or berry shaped), and bacteria termo (terminal or least) They vary in size from that of the rod-shaped bacteria which is in length about one third the diameter of the blood corpuscle or 1-9.000 of an inch to that of the bacteria termo which is on the extreme border of microscopy—barely visible with the best microscopes. We cannot tell how many varieties there are which are too small to be detected. These exist and increase very rapidly in connexion with some diseases; especially in specific ulcers, false membrane of diphtheria and the phlegmon of erysipelas; the increase being simply by enlargement and division. And these, also, may be a primary cause of zymotic disease. The growth of cancer seems to be, to some extent, similar; but it takes place in parts otherwise healthy and for a time, does not seem to do harm, except by its bulk; or to be connected with diseased action, except, abnormal increase with pressure upon nerves; but, there will be death in it. We are all to some extent familiar with the formation of pus as a result of inflammatory action; and we know something of the deposit of tubercle in the interstices of the lungs or elsewhere. Prof. Virchow tells us that both of these are instances of actual growth or cell proliferation; forming like cancer but being less solid. Each being the growth of an abnormal structure within the interstices of a normal one; and each being of exceedingly low vitality and unstable character. We know that cancer and tubercle may exist, even for years, without poisoning the system; also that pus may remain in the system for years without producing pyæmia; but the suppuration of cancer, the softening of tubercle, and the admission of air into cavities containing pus, soon develop the symptoms of constitutional poisoning. We have already referred to the discovery of Dr. Panum that bacteria do not poison the system; but by their decomposition generate a poison that does. It is probable that this furnishes the key to a knowledge of zymotic poisoning. These primary causes in the shape of organic spores and abnormal growths do not poison the system but by their decomposition within the body a poison is generated which does; constituting what we have termed the mediate cause of such diseases. These poisons, as various as the primary causes from which they originate, like cerebral poisons from any other source, weaken the nervous system, diminish nervous power and derange nervous action. The various functional disorders and failures caused thereby, constituting the proximate causes of the resulting diseases, I need not dwell upon.

Peculiarities.

Malarial diseases differ so much from others considered zymotic that there may be reasonable doubts as to whether they belong to that class or not. The probability is that they do; but, that the primary cause originates differently in these and other zymotic diseases. If our view of the origin of contaminating poison be correct such poisons are usually generated within the body; but it is probable that of malaria may be generated either within or without, and be taken into the system, either as organic spores or as subtle chemical poisons. Whether the spores, which Dr. Lanzi tells us may reproduce their own peculiar form of vegetation after being taken from the human liver, can reproduce themselves within the human system or not we are not informed; but as the various species of bacteria may be so produced it may not be unreasonable to conclude that the granules of malaria might be in some way multiplied. There is one marked difference while the contagium of most of the zymotic diseases is generated in the body of the diseased person, in connexion with the disease, that of malaria is never so generated; but always originates out of the human system. Hence, while many of these diseases are clearly contagious but not endemic, malarial diseases are endemic but don't seem to be contagious. Some of the zymotic diseases are remarkable for the high temperature attending them, while in others it never rises high. It is probable that the hight of temperature depends on the amount of morbid decomposing material in the system and on the rapidity of its decomposition. In all diseases which have a regular period of incubation there is doubtless some morbid material, similar to bacteria, produced which requires a definite period for its production, continuance and disintegration. In those cases in which the poison enters the system ready formed there is no period of incubation; and in those in which the morbid material is produced without and afterwards enters and is decomposed within the period of incubation, or rather the period between reception and active disease must be variable. Most of these diseases are self-limited; increasing, running their course, abating and disappearing (provided recovery take place), in a definite length of time. But some that we have supposed to be zymotic, increase indefinitely until they proved fatal. Some of them being amenable and some not being amenable to any known plan of treatment. In those which increase indefinitely, doubtless, the morbid material continues to be formed or to reproduce itself within the system; integration and disintegration or growth and decay going on at the same time—the *necrobiosis* of Virchow—which is notably the case in cancer and probably in syphilis and phthisis and in what is termed Addison's disease. The tendency to prostration which is a marked feature in some zymotic diseases is probably due in part to the rapid growth of bacteria or similar products, thus, perverting the nutritious portions of ingesta; and partly to the morbid disintegration of the same together with the consequent high temperature. Those which run a slow course with gradual increase do not present this feature. Probably none of these diseases are endemic but the malarial, and they only because the primary cause is produced without the body; the malarious algæ requiring an open field and congenial soil. The tendency to become epidemic depends of course, on contagiousness; the degree of which determines their liability or aptitude to assume this character. The cachexy, or anæmia and dystrophia, which is a marked feature of some of these diseases belongs to such as run a slow course with gradual increase. It depends, no doubt, on the organic or sympathetic nervous system becoming involved; whereby nutrition is interfered with and digestion and assimilation are deranged or entirely abolished. Some poisons act strongly on the cerebro-spinal nervous system, deranging sensation and motion; while others act upon the organic system, interfering with nutrition and producing cachexy. The circulatory and secreting organs being under the control of both systems suffer in each case. In diseases of this class which run their course rapidly there is a notable derangement or total abolition of nutrition; but it is not called cachexy, because it is of short duration; terminating in either convalescence or death. Spanæmia is common in these diseases. Poison in the blood might certainly be expected to produce disease of the blood. This condition is often termed anæmia, but not properly, because the wrong does not consist in a privation, but in a change of the blood; the proportionate number of red corpuscles being diminished and that of the white corpuscles generally increased. In pernicious anæmia or leucocythæmia this change in the corpuscles is evident and great. It is my opinion that in such cases the poison causes death or loss of vitality in the red corpuscles; and that loss of vitality renders them white. Many of the zymotic diseases protect the system against a subsequent attack. That such a disease could not be contracted while it already holds sway in the system would seem natural; but, we are not apt to notice the fact except in relation to syphilis, in which the constitutional disease prevents a fresh attack of the primary disease; and which though allo-inoculable is not auto-inoculable. It is evident however that the constitutional affects of malaria do not prevent the inception of more malaria; the amount of the poison being increased and the disease intensified. It is difficult to imagine why an attack of any disease should protect the system against a subsequent attack of the same. It would seem, *a priori*, more reasonable to suppose that susceptibility would be increased. It may be that in the disease running its course, an irritability of the nervous system is developed through which the contagium or primary cause is afterwards thrown off, without having time to generate a systemic poison; or in other words that incubation is prevented. And it may be that a tolerance is established to that which may be established by the continuous use of the vegetable poisons such as those of nux vomica, opium and tobacco with which we have supposed the zymotic poisons to agree in character. I believe that as a general rule, those diseases which are attended with a high temperature are the ones which protect the system against a subsequent attack; and probably, the higher the temperature may rise the more certain, or more probable, the exemption.

Contagia.

As to the form of the contagia and the manner in which they enter the system not much is known. In most of cases the poison seems to be eliminated from the body, during the course, or at the close of the disease; through some particular organ or tissue; and the contagia seem to consist of, or to be associated with, the debris attending such elimination. Thus the contagium of typhoid fever seems to be in the feces; and those of small-pox and syphilis to be in the pus; but whether it consists of germs, bacteria or pigment cells; or of a liquid or gaseous poison, is not known. It is not probable that the germs or organic cells connected with such diseases, such as the micrococcus and bacteria termo of diphtheria, are the contagia, or medium of transmission to others. This point is one of great importance and to determine it extended but careful observation and thorough investigation are much needed.

Treatment.

The profession has not succeeded very well in treating zymotic diseases. A few of them we have specifics for and these we treat with a considerable degree of certainty. Others are self-limited; and run their regular course and get well whether we treat them or not; but many of them we have failed to prevent, to cure, or even to modify to any great extent. Plans and systems of treatment have been numerous and changing; and the established practice of one day has been discarded, rejected or opposed the next day; and following the instruction of the best teachers has been only an example of the blind leading the blind. This state of affairs ought not to exist; and it is to be hoped will not long exist. If we find out definitely what these diseases are; then, we can learn definitely how to treat them.

Prevention.

The best treatment for zymotic diseases is preventative treatment; and it is gratifying to know, that in this branch of therapeutics, much progress has been made within the last few years. Among enlightened people such diseases no longer sweep over whole districts and even continents, uncontroled and uncontrolable, as did the plague, the cholera, and other pestilences of former years; and it may reasonably be hoped that they never will again. The facts now known and utilized that such diseases spread by contagion; and that the contagia can be neutralized or evaded, have robbed them, to a great extent, of their terrors. Quarantine and hygienic measures have been used to great advantage. Much has been learned in relation to the properties and uses of disinfectants. There is yet, however, ample room for advancement in this direction. The subject presents a wide field for research. If we can learn exactly the nature and habits of the different contagia; and also learn what will invariably neutralize or destroy them, out of the body, we might prevent the spread of such diseases; and, possibly, in time, effect their entire extermination. It would seem, judging from the advancement of the last twenty years, and the spirit of inquiry now manifest, that among enlightened people such diseases might soon become rare.

Treating Effects.

We have said that the poisons of zymotic diseases act upon the nervous system — on the cerebro-spinal, or the organic, or both — producing pains, spasms, malaise and derangement of functions in any or all of the vital organs; the processes of nutrition and secretion probably suffering most. To counteract or to limit these effects we use anodynes, diaphoretics, diuretics, emetics, cholagogues, expectorants, tonics, and the hypothetical list of alteratives, as well as food and drink, to restrain diseased action and to restore the functions of the nerves and the energies of the system generally. When we have allowed the contagium to enter, germinate and mature, and the poison to gain an ascendancy over the vital powers, such treatment is doubtless not only salutary but necessary.

If you have allowed a piece of metal or timber to fall among the wheels of a machine and the cogs have been broken and the shafts bent it is necessary that these broken parts be repaired as well as the cause removed. But it would have been better to have prevented its falling in; or, in case it could not be prevented to have removed it, if possible, before it had done mischief. He would be a poor machinist who would take no care to prevent such accidents; and when they did occur would insist that the only thing to be done was to run the machine until the obstructing block was worn out and then try to repair the wheels. Yet such has been the doctrine in relation to the causes of zymotic diseases.

Preventing Infection.

Surgeons have learned to render operations and wounds much less dangerous than formerly by using antiseptic sutures and dressings; carbolic acid or boracic acid being used. Prof. Lister of Edinburg has introduced a method of using carbolized spray in operations which is known as "Lister's method;" of which, Dr. J.

S. Billings of the U. S. army says: "after learning the result of its employment in the hospitals at Bonn, Liepsic, Berlin and in certain wards at London, and especially, after examination of Mr. Lister's ward in the Royal Infirmary at Edinburg, and seeing the cases dressed in all stages after operations—operations such as opening the knee joint, or upon abscesses of spinal origin – I came to the conclusion that this method is the most important contribution to our resources in surgery which has been made since the discovery of anaesthesia." Doubtless, antiseptics may be used to equal advantage in preventing diseases. Persons may be exposed to the contagia of small-pox or other contagious diseases, at different times, and not take them; even when seemingly unprotected. It would seem that we might aid nature in repeling or throwing off contagia as well as in other sanitary acts. It has been a popular notion that assafœtida worn about the person would prevent contracting diseases; and the same notion has been held in regard to camphor. It has been claimed that the use of Belladonna would prevent scarlatina; and that sulphate of zinc and digitalis, and probably other articles, would act as preventatives of smallpox. I believe that it is acknowledged that sulphur, properly used, will prevent scabies; which may not differ from some of the zymoses so much as some imagine. On this subject of prevention, in persons who have been exposed to contagion, much may yet be learned.

General Treatment.

Having failed to prevent it is necessary to treat; and not knowing how to cure, it is proper to palliate. In our treatment it is necessary to keep in mind the nature of the cases, so far as known. Zymotic diseases are often periodical. Many of them have their regular periods of exacerbation and remission; and many of them have their regular stages of increase, maximum, decline and disappearance; and many of them are self-limited and will decline when the time comes, whether they be treated well, or ill, or not at all; though some have a strong tendency to relapse. In treating, we must keep all this in view. By looking wise, giving paliatives, or placebos, inculcating patience, promising amendment, and waiting for nature to bring it about, we may often establish quite a reputation for skill, without much outlay, *animi muscularis vel pecuniae.* Let us be careful that we do not retard the remedial efforts of nature. Better not treat at all than to treat amiss. In consequence of this self-limited character we need not use antiphlogistics, evacuents and sedatives so freely as we would in a case of acute local inflammation or high traumatic fever; and local inflammations, if they do occur in zymotic cases, are to a great extent self-limited, like the fever, and don't require such active treatment as in cases not zymotic. Also in some of these cases there is a tendency to debility and to prostration, which may be extreme, either during or at the close of the fever, requiring caution in the use of debilitating treatment; and vigilance in observing signs of prostration; as well as a general supporting course, including nutritious food as well as stimulants and tonics. The increase or decrease of zymotic diseases over wide areas, probably, includes all there is of the much talked of change in type or diseases. It has long been long noted that some of these diseases run a definite course, almost regardless of treatment; and the treatment adopted has been merely palliative. Others, such as typhoid and typhus fevers, have generally been subjected to active treatment. Now, however, some of our best physicians aim in these fevers only to palliate, treat local troubles and alarming symptoms pro re nata, and support the strength of the patient with stimulants and food. In some of these diseases there is very high temperature; attended with sometimes a strong and rapid, and sometimes a feeble rapid pulse. It is now thought advisable in such cases to use cooling treatment such as cool air, cool water, ice etc. Some of the German physicians have recommended the use of cool baths sufficiently long and often to bring down the temperature and keep it down to near the natural grade. This may be a good plan when it is practicable; but, except at hospitals, it is often impracticable. The treatment which has been most successful when understood and that which probably will be the treatment of the future for zymotic diseases is the specific; that is, treating the cause instead of the effects.

Modifying.

Dr. Jenner, who learned the secret from the unprofessional dairy people of England, has taught the profession to prevent smallpox, by inducing a mild form of the same disease; which causes but little suffering and no danger but removes susceptibility. We have also been taught to render small-pox—when not prevented, much more mild than formerly by proper hygienic measures. It is a question worthy of consideration, but one which we cannot yet answer, whether or not we might obtain immunity from, or greatly ameliorate, some of the other dangerous zymotic diseases by inducing a milder disease of the same nature; and also whether or not we might render attacks, if they could not be avoided, much lighter by proper hygiene, before, and during the course of the disease. In other words whether or not we might learn to master other zymotic diseases as well as we have small-pox.

Morbid Growths.

In relation to such growths as cancer and tubercle the question naturally arises whether or not their growth can be prevented. It would seem that by combined tonic effect on the nervous system, especially the organic, and a sedative or stasic effect on the morbidly increasing part, such an object might be accomplished. If so it is a matter of the utmost importance to know how; for, we have no other means of curing, or even retarding, tubercles or internal cancers at this stage. I think this point has not received the proper attention it diserves. It is possible that by proper observation and scientific experimentation we might learn to cure these diseases in the forming stage; preventing the systemic poisoning by preventing the growth which by its decomposition would generate the poison. Pyæmic poisoning may be prevented by preventing the contact of air with the pus; or, in case evacuation is necessary, by making a free opening and using antiseptic washes. And septicæmia may be avoided in most cases, probably in all, by cleanliness and the proper use of antiseptics. In those as in other cases, preventing is not only better, but easier of accomplishment than curing. It is more than probable that cancer may be cured by removing the cancerous growth at an early stage; but to be curative the heteroplastic growth must be entirely removed; and this must be done before the system has become affected; that is, before ulceration and disintigration have commenced. At the same time that the growth is removed measures should be taken to improve the general health and strengthen the nervous systtm—especially the organic system—to prevent the genesis of such growth elsewhere. The medicines useful in such cases, probably, are iodine, iodide potash, iodides of mercury, bi-chloride of mercury, nux vomica or strychnia, mineral tonics as iron and zinc, mineral acids, cinchonia or its derivatives, quinia, etc. Some of these are useful as general tonics; and some probably, as antidotes to the blood poison. On this point more will be said hereafter.

Stage of Incubation.

Many zymotic diseases have a stage of incubation during which we have supposed bacteria or something analagous to be generated. If we could stop this process by treatment we would certainly, either cut the disease short, or render it much lighter. As this view of these diseases has not generally been taken, no experiments, or but few, have been made relating to this point. I think it worthy of careful investigation. If we could learn how the system repels these contagia, after an attack, we might learn to assist it to repel them before a first attack.

Antidotes to Primary Causes.

If it be true, as we have supposed, that zymotic poison is generated by the decomposition, within the human body, of organic matter, of either extraneous or internal origin, it is evident that the best treatment would be to neutralize, destroy or eliminate the morbid organic matter, or the resulting chemical poison. The profession have certainly learned to check and even to cure malarial diseases; but whether we do so by destroying the poison, or by bracing and vitalizing the system so as to increase its repeling force, we do not know. A little more light on this subject would be beneficial to our patients as well as to ourselves. If we could know what to do in such cases we might do it better. We must confess, in regard to the treatment of malarial disease with cinchona and its alkaloids, however humiliating it may be, that our knowledge is due, primarily, to the aborigines of Peru; although science has added much to the knowledge obtained from them. We have also learned to use arsenious acid, eucalyptus and many other articles as anti-miasmatics. But our practice has been vascillating and our knowledge is empirical on the subject. It was formerly thought good treatment, in those diseases in which the poison seemed to be eliminated with some one of the secretions by increased local action, to try to encourage or intensify such local action as much as possible. Such treatment, in most of diseases, has been abandoned. If it has not been abandoned in all it ought to to be. The question whether or not bacteria can be destroyed in, or removed from the system, by medicines, has not I think been definitely decided.

Bacteria are said to be very tenacious of life. They will stand greater excesses of heat and cold than the human system can stand without injury. And it is difficult to find chemicals that will destroy them and not be too irritating to the tissues. The substances that have been found most destructive to them, out of the human system, as stated by Prof. Oertel, are chlorine water, alcohol, permanganate of potash, carbolic acid and oil of thyme, which rank in efficacy in the order in which they are named. Other articles have been found destructive to low forms of vegetation, prominent among which are quinine, salicylic acid and sulphates. It is not improbable that if we know how we might cure all this class of zymotic diseases during the stage of incubation; and that we have the medicines to do it if we understood their use. If so, are we not inexcusable if we remain in ignorance?

Antidotes to chemical poisons. When the zymotic action has resulted in the generation of a subtile poison which pervades and intoxicates the whole system, have we nothing that will act as a chemical antidote to it or eliminate it quickly from the system? The profession have long held vague theories or notions on this subject but our knowledge has been empirical rather than scientific. We have used the remedies recommended by others or accidentally discovered by ourselves. simply, from a belief founded on experience or mere assertion that the disease abates under their use; and not because we have known how and why such should be the case. This I believe to be the reason why many thinking men who have no knowledge of the science of medicine have faith in the Homeopath system. The Homeopath claims to tell how and why his medicine acts upon and cures the disease; and a fallacious reason is often more satisfactory than no reason at all. Our knowledge of therapeutics must necessarily be founded on experience, experiments and observation; but supposed facts, so learned, ought always to be tested by scientific principles. The facts that one article has seemed to be beneficial in typhus and another in typhoid fever are not conclusive; and do not teach us how to use them. We ought to know what the active principle is, how it acts, and what it acts upon.

We ought to learn what the poison is in each disease, how they are each generated, how eliminated, and what the antidotes, chemical and physiological are for each. Then we might expect to treat zymotic diseases; and cure all that are curable. Dr. J. Marion Sims, in his address at the meeting of the American Med. Association, in 1876, spoke of the alarming increase and extent of syphilitic poisoning, and proposed a plan to prevent the extension of syphilis. The object is certainly a very desirable one but his plan is eminently impractical; even, impossible. The same may be said, I believe, of all other plans that have been proposed. What is needed in the case; and what we may hope will yet be attained; is a sufficient knowledge of medicine to understand eradicating the syphilitic poison from the system. If Dr. Sims will inform us how to do that, he will have done something practicable, useful and praise-worthy.

What are Used and What is Claimed.

As a result of knowledge, founded on observation, physicians are in a habit of using a number of articles as remedies in zymotic poisoning; with the hope of making cures; and, it may be, with such result. But I think, it has not been determined whether such remedies act as antidotes to the poison, or as a means of repairing the mischief it has done. Cinchonia and its alkaloids, especially quinia, have long been used as a cure for malarial disease. Mercury and iodine, in their various combinations are relied upon in the treatment of syphilis. Prof. Leibermeister says that he thinks, if there are any antidotes for the poison of typhoid fever, that mercury and iodine are such antidotes. Chlorine, iodine, phenol, alcohol, quinine, salicine, turpentine and sulphur, in the various chemical contributions, have been and are extensively used as antiseptics and antizymotics in various diseases, though I think, empirically rather than scientifically. Having yet but little knowledge of zymotic agents and their products; even ignoring, as some claim to do, their presence and agency, it could not be expected that the profession would possess full scientific knowledge as to the treatment of cases in which they predominate. Much however, has been learned; and many physicians are fully aroused on the subject.

As Keyes has demonstrated that the proportionate number of red corpuscles in the blood is diminished and that of the white corpuscles increased in syphilitic poisoning; and that under the persistent use of the bi-chloride of mercury, in small doses, an opposite effect is produced; the red corpuscles being easily increased and the white diminished. This result is due most probably to the chlorine rather than to the mercury. The different chlorates are now very frequently employed in such diseases, and the use of carbolic acid, carbolates, hydrate of chloral and salicylic acid, which no doubt are all excellent anti-zymotic is extensive and seems to be rapidly increasing. Dr. Beebe, late of Chicago, claimed to have both prevented and cured diphtheria, erysipelas, puerperal fever and scarlatina, by the use of sulpho-carbolate of soda; not given in infinitesimal, but in very liberal doses. Sulphite and hypo-sulphites with various bases have been very highly extolled by some in both diseases.

Local Applications.

Other methods of using anti-zymotics than by the stomach have been practiced and with good results. Local applications in erysipelas; washes and gargles in diphtheria vaginal washes; in puerporal fever and vaginal diphtheria; and various washes and local applications to cancerous and syphilitic ulcers are universal. The articles so commonly employed are preparations of chlorine, such as chlorate of potash, and to chloride of iron; the preparations of iodine, as the tincture, compound solution, iodide of potash iodoform; the preparations of phenol, such as creasote, carbolic acid; hydrate of chloral; nitrate of silver; and the permanganate of potash. The local use of soap and water has been so often recommended and so long practiced that no one questions its propriety; though, of course, its use, and the only thing that makes it proper, is the removal of substances liable to chemical change with deleterious products.

Hypodermic and Intra Venous Medication.

If the decomposing materials or the poisonous products of decomposition are in the blood and circulating with it through the system. The question would naturally arise and whether or not the sub-cutaneous, or even the intra-venous, injection of antidotes would be admissible and curative. Certainly if the poison is in the blood and we want to use a chemical antidote the most effectual method of using it would be to put it in the blood; provided, we could use it strong enough, and enough of it, without doing injury. For this purpose intra-venous would be more direct than subcutaneous injection; but there might be more risk in it. Intra-venous injections have been used on animals experimentally and on persons medicinally without any bad effect. But yet, until more fully tested they should be used with great caution. Hypodermic injection is now a recognized, and in some localities a common, method of using medicine to affect the system quickly; and in cases in which it is difficult or impossible to use it by the stomach. Morphia is often used in this way to produce an anodyne effect; ergotine to induce uterine contractions; quinia as an anti-periodic; atropia as an anodyne and as an antidote in cases of opium poisoning; and various other articles have been so used for various purposes. Dr. A. B. Hall, of India, has reported good success in the treatment of children with hypodermic injections of hydrate of chloral. And Dr. Hirschberg claims to have treated erysipelas very successfully with carbolic acid used hypodermically. Injections of medicinal substances into the stroma of organs and of abnormal growths has been practiced; not extensively, but, it is claimed with good success. The principal articles thus used have been iodine ergotine and nitras argenti. Dr. Wilde, of Vienna says he has cured what he supposed to be cancerous tumors by using nitrate of silver in this way. Dr. Schnitzler has claimed to have derived great advantage from injections of carbolic acid into the lung tissue in the advanced stage of phthisis. And Dr. J. G. Sinclair, Coghill, and others, have treated bronchocele very satisfactorily with injections of ergotine. When the zymotic poison has a local nidus we might certainly hope for good results from the application of the antidote within the stroma of the diseased structure. Investigation is the road to truth.

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Art. 4.—Transcendental Medicine.—An Enquiry concerning the Manner of morbific and remedial Agents independently of Empericism.

BY T. L. WRIGHT, M. D., Bellefontaine, O.

SECTION III.

The Human Constitution, viewed as reflecting the forms and natures of the lower animals.

There is a certain bond of unity running throughout the entire animal kingdom. There is a sensible relationship between man and the lower animals, a relationship that connects him with the brutish and reptilian world, living and extinct. Not only the outward form of the human being is affiliated in some degree, with the baser forms of animated nature, but his mental qualities and emotions partake somewhat, at times, of the character of the instincts inherent in brutes. The presumption at once arises, that the phenomena of disease in man, as well as the therapeutical action of medicine, must become tinctured and modified, occasionally at least, by reason of such relationship.

Fully to appreciate the extent and closeness of the affinity, which exists between the morbid and therapeutical activity, displayed by mankind, and the lower animals, respectively, it will be of use to notice some of the other and more evident points of connection, which exhibit themselves in common, in the human and the brutish creations.

A survey of the changes which take place in the very process of the formation of the human being, will, very clearly portray the character of the subject under discussion, as well as illustrate some of the facts which will be advanced.

"We discover structures in the embryo not persistent, but transitory, evanescent. We see that the individual is in fact, passing through a series of metamorphoses, expressed briefly in the term development—passing through forms, which represent the permanent forms belonging to the organic world; not human but bestial; of whom some belong to the existing world, whilst others may represent forms which once existed, but are now extinct. The fully developed forms of birds and fishes, of reptiles and mammals, are represented in the organic structure of the human embryo."

There is no likelihood that the processes of evolution, commenced in the human embryo cease at birth. The elimination of bestial characteristics probably continues, throughout a portion, at least, of the independent existence of man. Great changes are observed during the progress of life in the physiognomy, in the appetite for varying kinds of food, in the aptitude for contracting certain kinds of diseases, and indeed, in a great multitude of particulars of a constitutional kind. The self-limited contagious maladies, those which affect the system once only, as a rule, such as measles, scarlatina and variola, may be classed, without violence, with the phenomena of the elimination of some bestial, or reptilian characteristics. Their appearance may possibly signify the continuation of the same forces of development, which began in the embryo; modifying it may be, the constitution of man, without affecting his external form.

It is a very old observation that the features of the human face, frequently show a striking resemblance to those of some of the lower animals. One, will possess the physiognomy of the fox, another of the eagle, while certain others, will be perceived to have the features of a dog, or a lion, and so on, throughout a long range of brutes, and even reptiles. Persons in whom such likeness may be traced, are generally believed, and with some show of reason, to actually betray the characteristics of the animals they resemble.

The structural affinity between man and the lower animals is not confined to the countenance. In surveying any considerable group of individuals, the following particulars can most generally be observed—"some persons cannot extend their arms or limbs to the full degree of extension; some have two or more fingers or toes webbed; some have no arms, so to speak, but mere hands; others no legs, but mere feet; or the thighs are too short, or the arms; and in some the back is perfectly straight, instead of being arched or curved; in some the nails are round; in some pointed like claws; on the finest necks of men or women, may occasionally be seen some exceedingly small openings marking the vestiges of branchial arches, or gills. All, or nearly all the varieties here mentioned are simply fœtal, embryonic conditions, which ought to have been evanescent, had the law of perfect formation of species prevailed."

As a rule, the most hideous congenital deformities that prevail among men, are due to a mere embryonic arrest of development; leaving the deformed part or organ, in that particular point of change or evolution, where the likeness of some beast or reptile was yet impressed upon it.

It is very common to see persons, the soles of whose feet have a tendency to turn outwards when they walk. The gait of such remind the observer of the movements of the hinder members of the saurian tribe. Individuals so formed will usually be perceived to labor under a similiar disadvantage with regard to the movements of their wrists also. The motions of their hands suggest the idea of fins, or more properly, the outward paddling actions of the anterior members of the tortoise, or alligator. The structure of the arms are found in man. And there are other organs, internal, not seen, that affiliate man with the brute creation.

The mental and emotional manifestations of an individual will sometimes suggest the existence of some correspondence of an important nature between his physical organization and that of brutes. The powers of interest, of example and of education may sometimes combine to bend a character to the knowledge and practice of virtue and usefulness; yet the love of crime may prove the stronger inducement, and vice and murder claim their own. Some, in the manner of hideous reptiles will kill, without rational motive in cold blood, the innocent and helpless; apparently without any sense of remorse, or the slightest consciousness that such a sentiment as pity, ever dwelt in the human heart.

Perhaps it would not be out of place to suggest that such criminals should be physically and mentally examined with greater frequency than they have been by experts in comparative anatomy and physiology; so that every peculiarity discernable, connected with their entire organization, could be scientifically, fixed and described; and that the departure of such persons, in their physical and mental characteristics, from the common average might be clearly recognized. In a medico-legal view, such a practice would eventually establish, authoritatively, certain principles which might satisfy the mind, that those who, by nature are more in affinity with the cold and deadly reptile, than with humanity, should share the fate of their kind; and particularly, should not be permitted to propagate their species in human form.

Many facts indicate that the metamorphosis of the human embryo and the development of the human being, fail to completely eliminate the forms and natures of bestial structures from the constitution of man. They may show also the fact, that bestial and reptilian characteristics are eliminated from different persons in different degrees. Some of the most terrible of the brutish instinctive natures, exist in great excess and activity in certain persons; while in others, an even temper and tender heart, and overflowing sympathies, in unbroken continuity throughout a troubled life demonstrate, if not their abseence, at least their complete subordination.

The tenacity of life displayed by various persons and families, presents in its varying degrees, some additional grounds for suggestion and inference. It is hardly to be doubted that very many children are born into the world, apparently sound in physical form and mental health, who yet, from some occult imperfection in their constitution, are incapable of living beyond a certain culminating period. A large percentage of the mortality of children and youths may plausibly be referred to this cause. The time appears to come in the course of a few months or years, when some of the recondite conditions of further life and development fail. Some epidemical or accidental malady perhaps attacks the child about this period. The symptoms are violent and incontrollable, and the patient speedily dies. Remedies seem to have lost their characteristic powers, and to have become completely inert. Such patients are very often remarkably large, overgrown and to all appearance robust. Yet they seem to hasten to die; and, they appear to have reached the very verge of life, whence the first shock of disease plunges them instantly, without warning, into the inevitable abyss.

And there is yet another class of human beings, whose physical structure may appear fine to the eye, who are strong and active and healthy, as long as they are not subjected to the assaults of disease; yet they die most readily and unexpectedly upon the advent of maladies usually esteemed tractable. A feeble tenacity of life very often is perceived to belong to certain families. Reasons for this defective tone of vitality are often apparent and well known. Yet there are many instances, where no obvious reason exists, and the cause of the fact is shrouded in obscurity. It is by no means unlikely, that sometimes the true reason is, that such persons and families are allied, in some of their essential constituents, to certain animated structures, that are either becoming extinct, or that have been completely exterminated from the earth; animals that have become extinct, because the earth no longer furnished the conditions necessary to their existence. "The extinct races" says Blainville "have perished through natural causes which are still acting every day." Again he declares "we see disappear at present, little by little, the genet, the civet and the ichneumon."

Such considerations as these must enter along with others, into the materials necessary for the construction of a better and higher system of therapeutics than any known at the present time. Such a therapeutics must recognize the constitutional relations undoubtedly, existing between man and the lower animals; and especially that group of relations that impress characteristic sympathies upon morbid and therapeutical actions, as they appear in man, and in brutes respectively. Such a therapeutics also will greatly simplify, and help to arrange in a scientific and satisfactory manner, the amazing mass of empirical knowledge which now prescribes the method of treating diseases.

Various other considerations can be brought to bear upon the illustration of the substantial sympathies, that exist between man and the lower animated world. It will, perhaps add to the perfection of the discussion to notice one or two of these, to show the variety as well as extent of the points of affiliation between them.

In nearly every inferior group of animals, there is observed generally, a well defined and rather limited range of aliment, upon which that particular species of animals subsists. But in the human being an aptitude for sustaining life upon a remarkably great variety of food presents itself. Man is indeed omnivorous. In any single person the limit of acceptable aliment may not appear very extraordinary. Still it will be perceived, that what is disliked by one, will be relished by another; and what may prove injurious to some, will be congenial to the wants of others. One partakes by preference, chiefly of flesh; showing a likeness to certain of the lower animals. Some other one, will be best pleased with vegetables, that is, plants; while still others feed by preference upon fruits; and occasionally an individual will appear, who seems to be equal to nearly all the dietetic vicissitudes and possibilities imaginable.

It can scarcely be questioned that the variable natural appetites for food in human beings, are associated with complexity that characterizes the constitution of their bodily frames. The tastes for special kinds of food, may change from time to time in individuals, consequent generally upon the modifications, which take place in the human constitution, with the lapse of years. Artifical tastes may within certain bounds be cultivated. The articles of food however, against which a true idiosyncrasy exists; such articles as effect in a poisonous manner, the system can never become of use as aliment by any necessity, or by any accident. This is in obedience in all probability, to the law attending the relationship that happens to subsist between the constitution of certain human beings, and that of certain lower animals, to which such articles of food are likewise poisonous. Opium, tobacco and alcohol are not exceptions to this rule. Neither of them is ever available as a food. And each one, when it is not acting in some way in the character of a drug or medicine, is acting injuriously.

Still, there is such a connection between the physical constituents of every man, and the whole range of animated nature beneath him, that it is possible for the human being to educate himself to take and even desire substances of food, that at first may be distasteful—but of course not injurious. The taste for tomatoes, olives and a great many other articles of diet, is very often artificial. Place man in any locality upon the globe, where any of the greater animated structures can find food suitable for subsistence, and it will appear that he can adapt himself to the very food, and often will prefer it, that sustains the life of the animals native to that place. But the reverse of this is not true. The simple tastes and capacities for food of most of the lower animals, confine their habitations strictly within such limits, as will afford to them a sufficiency of their natural uncomplicated and peculiar aliment.

The effects of remedial agents on the human animal, are modified in a manner so similar to the modifications pointed out, respecting food, that a brief notice of them only will become necessary. Of course they partake of the uncertain character which would be expected, from the varied elements that enter into the constitution of man.

Some species of the lower animals are poisoned by substances that are beneficial to others. In like manner, there will be perceived in certain individuals among men an idiosyncrasy, which forbids the use of particular medicines, that in others prove to be salutary. This peculiarity of constitution, already noticed in its relations to the question of food, exists with respect to medicines, in various degrees in different persons. In some an idiosyncrasy amounts to absolute prohibition; in others merely to inconvenience, and an absence of beneficial effects commensurate with injury done. It thus appears that various medicines may have each of them, varying therapeutical effects upon different persons.

It is true, certain habits neither physiological nor therapeutical, may be formed with respect to drugs, or substances not alimental, similar to those discussed in connection with food. These habits may prove most powerful and imperious; and at the same time may act so disastrously upon mind and body, as to produce the conviction that they are not the natural and proper exponents of the predominating characteristics of the constitution. Such habits must rather be esteemed, to be the results of assiduously placing in abeyance, some of the higher qualities of animal life; and at the same time, carefully nursing some low down, naturally invisible and unfelt instinct or appetite, representing possibly the tastes and propensities of worms, flies and beetles. The habits of dram drinking, tobacco chewing and opium eating, are most likely, examples of such instincts nursed into hideous proportions, and fastened as unsightly excrescences, upon the natural symmetry of the human character.

It may be impressed further, however, that no amount of nursing or perseverance will ever overcome a true idiosyncrasy. If the constitution of a person is such, that it is in close sympathy with any instinct or habit belonging to the lower animals, which renders the use of certain articles of medicine inimical to them, that inborn and established constitutional peculiarity, will forever remain unchanged. Active constitutional essentials therefore are not to be confounded with certain dormant, or latent qualities, which, whether good or bad, may be educated and developed by exercise and perseverance, either to the advantage or injury of the individual.

It follows from the constitutional characteristics of the human being that morality and religion may become habits, and their active display is in some degree the consequence of habit. When persons are placed under the influence of education and religious principles—in consequence of the watchful exercise of the better elements of their constitution—their baser, and fiercer, and deadlier natures, may remain in a latent state. It may, in fact never become apparent that characteristics have any place within them at all. The highest enjoyments of life, those arising from cultivated taste, and refinement of thought and action, are derived from an incessant cultivation of certain traits of character—in many dormant—in all or nearly all—obscure, naturally. Such a wide scope of possibility in the artificial character of the educated human being, shows infallibly, the extent of his natural resources, and the universal range of his personal relationship.

But however much good principles and a predominence of kindly elements may disguise and hide the natural truculency of man, it nevertheless exists. In the best of men, if congenial surroundings are offered to them, and especially, if customary humanizing and religious influences are withdrawn for a time, they are liable to assert themselves in all their deformity and cruelty. In like manner, certain constitutional diseases may remain dormant for years or generations, and at length, upon the presentation of conditions adapted to a display of their activity, they will burst forth and they will prove very often, unconquerable.

The subject of the human constitution and its affiliations, is so important, that a further illustration of it, will not be amiss.

Morbific agents impress the human system in a variety of ways. Diseases will present different degrees of violence. They will exhibit in various persons, various modifications and phases; and certain constitutions will repel them altogether. Nothing is more common than the spectacle of some plain, and well marked disease assuming complications, more or less allied to the original malady, yet not necessarily a part of it.

Many important changes take place in every case of serious disease, that are perhaps, never exactly duplicated; changes that depend upon the individuality of the patient himself, and are connected with no human constitution. These changes depend upon the peculiarities of the constitution exclusively; having nothing to do with the cause or name of any disease.

These facts show, that therapeutics, no matter how clear, or how well classified it may become, can never be so easy of application, as to dispense with the necessity of constant watchfulness and frequent changes. No difference how plain and proper any application of remedies to diseased actions may be at one time, there is no assurance, that in a few hours complications may not arise, connected with some occult affinities in the constitution of the patient, that will require modifications in treatment.

These difficulties are imposed upon the right application of remedies to disease, by the peculiarities of the individual constitution; and they are not removed, or simplified by a general survey of the nature of man, as an animated structure.

It is remarked by Flawsens in his memoir of Blainville, as follows: "M. de Blainville assumes a great fact, the fact of the unity of the animal kingdom." Again he remarks: "So long as he had confined himself to the study of present species, the *animal series* had every where presented to him gaps and vacuities; everywhere beings were found wanting." At this point, by a happy inspiration of genius, he discerns in nature which has perished, the beings which are wanting in nature as it exists; and, with surprising skill he intercalates among living species, the fossil species. Thus he demonstrated the unity of the animal kingdom."

To the whole, is added the proposition, that mankind represents in himself the sum total of the animal kingdom, living and dead. Man carries in his nature the representation of innumerable animated structures no longer existing; and whose remains lie hidden perhaps, thousands of feet beneath the oceans bed; locked in the embrace of the debris and wreck of the unnumbered ages of the past. Some of the links in the chain of human characteristics are missing, and their nature can only be surmised through the amazing complications, and contradictions in the phenomena of human thought, and human action, and human disease.

The importance of the branch of transcendental medicine just discussed is apparent. It is directly concerned in determining the nature of man as an individual; especially in regard to his emotional characteristics, the course of his diseases, and the modifications implied in the therapeutical action of medicines. This discussion has nothing to do with the more obvious predisposing and exciting causes of disease; as heat, cold, moisture, contagion, malaria, and kindred agencies. It treats, rather, of those more hidden, but not less real natural forces, which do not so much cause disease, as modify its course, and determine its complications. All this, in no slight degree involves the consideration of the nature and the powers of therapeutical appliances. It widens the field of enquiry, and increases the quantity of knowledge, respecting the varying and undetermined powers of remedial agents.

Art. 5.—On Aborting Variola Eruptions.—A Rejoinder to Dr. Hildreth's reply.

BY. J. S. HALDEMAN, M. D., Zanesville, O.

I find in the October number of the LANCET AND OBSERVER an attempted reply by my friend Dr. Hildreth of Zanesville, Ohio, to my article on Aborting Variola Eruptions which appeared in the July number. I consider it truly a very puerile one notwithstanding he is a veteran in years and in medicine. If no better attempt could have been made by him than he has made, he would have saved laurels by having remained silent. It is full of errors; and has running through it a vein of low artfulness that not only presents him in an undignified, but dishonest light. It evidently shows that he is in a "peck" of trouble. He need not evince so much irefulness and venom. No one is trying to injure him; at least not I; not one laurel do I feel like plucking from the laureate resting upon his brow. I had rather insert a few, for it is my humble opinion that there is still some space left. The production is somewhat windy and prolix. You can very readily perceive the big "I" and the little "u". It has this merit however, that it shows the true animus of the man—an overbearing and unrelenting dogmatism,—a you get out of the way, if you don't believe and operate with me.

He says my article, "represents him as entertaining some very ridiculous ideas about the treatment of small-pox." All I have to say in relation to this charge, if it be so, no one is to blame but himself, for they are his own utterances verbatim. They appear in my article unchanged as they stand recorded upon the Journal of the Academy of Medicine—It would be needless for me to re-insert them here. I refer the profession and every reader of the LANCET AND OBSERVER to my article in the July number 1872. I would further state, that on that same day of the session of the Academy, a certain member who felt interested for the Doctor, stated upon the floor while the discussion was progressing, that Dr. Hildreth did not mean every case of Variola, for no one would deny, but that modifications might be brought about by proper early treatment. Then, while he was thus speaking, (I know it as well as I know any fact) I objected to this member representing Dr. Hildreth, or acting as his Attorney. I stated those might be the members' views, but I would not take them for Dr. Hildreths, and urged as a reason, that Dr. Hildreth was present and could speak for himself, for he was a pretty fair talker and not at all bashful. He then peremptorily refused to talk, he refered to members statement as his views, and still insisted that "no essential change could be made." This was, mark you, the 11th of January session, 1877. I then gave notice that if Dr. Hildreths' strictures upon my remarks, were allowed to go upon the Journal in this form, I would be under the necessity of placing a counter statement upon the same. He did somewhat modify the phraseology, but not sufficient to be satisfactory. The primary offending word was "mal-practice." But he saw fit in the plenitude of his head and charity to change it to the word "censurable;" which word, he thinks, has caused my paper to see the light, and get into print. He is right; it did. "Behold how great a matter so little a 'fire' kindleth." This latter is "clerical" — the former is medical. I hope my friend will keep this in mind, for he usually discriminates very closely.

Now observe closely; be it remembered at the 22nd of February session, the third one after this Asseveration of Dr. Hildreths' was made, some eight weeks, if I mistake not, I read the paper containing my defense, and which appeared identical in the July number; after the reading of which, he made the very generous statement, he quotes from the record of the date of Feb. 22, in his reply to me in the LANCET AND OBSERVER of October. Why, and how he changed so very materially in those eight weeks of interim I cannot tell! He, or some of his special friends might know. I am glad that he did become repentant, and did "back down" a little. It does not, in the least invalidate my prduction.

Now, in respect to his denial of his admission, that it was "orthodox 25 years ago," I would state, the Secretary handed me a copy of his statement at the time, which I have still in my possession; and to-day I examined the Journal, and found it inserted word for word (254 page) as I have it in my production. And further, the Secretary told me, when making the examination, that he is certain, that Dr. Hildreth wrote the statement himself, and gave it to him to be entered upon the Journal. That certainly makes this point clear and settles it. And more, he made no such denial, when I read it in the Academy of Medicine. He was present and heard it all. He, for the first time denies it in print. This makes an ugly showing. There is something wrong somewhere. There must be a design in it, or else his memory is becoming greatly impaired. It is a good thing that we have records. Is it not patent then; that he has gone " back" upon his declaration? Is it not plain "crawfishing?" If he had convictions that he was right, he had better stuck and defended himself honorably, or acknowledged that he had been precipitate at least, if not erroneous in his procedure.

The Doctor endeavors to give the origin of the " little unpleasantness," as he is pleased to style it. Says, it occurred " in commenting upon" the " extraordinary course" I pursued, by having " something to say of the value of vaccination in such an emergency, and of the utter worthlessness of all other measures." This assertion lacks somewhat of correctness. He evidently, "arranges the matter to suit himself;" and puts up his " man of straw," that he may " valiantly knock him down." It was not alone, the remarks he made on the value " of vaccination, that created the ' little unpleasantness," nor as he infers, the now word " censurable," but then " malpractice." But it was emphatically the remark he made upon the treatment, when I read my first paper on Variola, January 11th 1877, and my comments on those remarks. This is the head of the source of all Dr. Hildreth's grievances, notwithstanding, whatever else he may say to the contrary. If I had not then and there, stirred his heterodoxy, his last effusion, would never had seen the light of day. And there and then, the ovum was laid and incubated, that brought to the vision of the members of the Zanesville Academy of Medicine; and through the valuable pages of the LANCET AND OBSERVER to the vision of the profession at large my paper of defense. I will give his remarks as found on the Journal, and verbatim as he uttered them. I do not wish him misrepresented, therefore I am so particular. They were in reference to inviting the pustules to the surface. Here is his language, (January 11th, page 236.) "To bring the eruptions to the surface I sometimes wrap the patient in a blanket wrung out of hot mustard water." It is evident from this language, that he had been talking about bringing eruptions to the surface, for it tells how. These were the words that I took exceptions to. This hot and stimulating treatment was the ancient one, and which proved so pernicious. I then advocated the anti-phlogistic plan both in diet and medicine, thereby producing abortion of pustulations to as great an extent as possible. And I would here add, that the practice recommended and inculcated by Dr. Hildreth upon the academies floor is a dangerous one. If he continues this kind of treatment, in this disease, he will be very certain to convert the discreet variety into confluent, and thus, ever be an unsuccessful practitioner among variola patients.

Vaccination only came into the discussion incidentally, as he lugged it in himself. The controversy is not particularly on vaccination. It is on aborting variola eruptions, and to this I shall hold him, I am, as I said very distinctly in my article, a believer in vaccination, and practice it; but I am governed by the state and circumstances of my patients when to vaccinate. And so far as neglect is concerned, of which the Doctor so significantly speaks, I have as much sensure, perhaps, to write against it as he has. I did not neglect my patients then; —I prescribed remedies, and gave dietary directions, and every necessary attention. I was as much in the habit of doing those things then as now, and now as then. Much of the safety of our patients in any disease depends upon the careful attention they receive from the hands of their physician. I would wish it understood that I am not a monomonic physician. I do not care to be a hobby rider. Nor to rely merely upon the potency of one or a few remedial agencies, even in small-pox. I would not say that "vaccination is the only thing that will abort," for I know that other remedies will. I know it from the best of sources—experience, etc. To this end I might resort to the Lancet; then again I might not. I might resort to vaccination, then again it might be impracticable and forbidden. I told in my paper wherein I would hesitate before I would vaccinate, and there are other conditions I would refuse, to do so, and instead, apply other suitable remedies. Then reasoning from such data, I should have no fears of receiving an unfavorable verdict from an intelligent and properly discriminating jury of my fellow countrymen. Then in reference to the utility of vaccination, as a remedical agency in the general, there is no issue between us. Dr. Hildreth might use it when I would not, and I might use it when he would not, and justifiably in either case. As authority, for the course I pursued in regard to non-vaccination, I gave the best. (See page.). I gave both "antiquated" (as the Doctor had it) and the most modern.

In reference to his innuendo at my religious character, clerical, I have this to say, that I am solidly of the opinion, that it will be no damage to any one in any of the professions. One thing it is no unusual thing, and it obtained anciently as well as modernly. We have knowledge of many prominent Lawyers, and characters in other callings, as well as physicians, who were and are of this type. Centuries ago, in the days of the Apostles and Christ such was the case, and I presume, notwithstanding my friends antipathy towards them, it will be so, perhaps more so, in all the future. We learn from very creditable reading, that "one" Paul invited Zenas the Lawyer to be brought, whom he greatly applauded for his many merits and piety, and doubtless had preaching authority. This must suffice for the legal calling. Then in the medical there was Luke, M. D., who was called the "beloved" physician. That must mean famed—one occupying the pinnacle of medical elevation. That is as much as can be said for my friend. There are doubtless those in this city, and envirening community that take pleasure in calling him their "beloved" physician. So then, this additional, that he publishes me to have, cannot lower me any, nor make me any less "beloved." Christ was also an M. D., and I am sure, he is our great ensamplar. He was by way of eminence styled the Great Physician. He had a practice; and performed some wonderful cures; with some he used medical agencies—salves and ointments, etc., and with others, his mere fiat. Lepers were recovered, the blind received their sight, the deaf were made to hear, the lame to walk, etc. I think the two callings harmonize most excellently. It is a query with me, if we have a right to divide them, yet doubtless it is so viewed by the "majorities." We may with propriety make arbitrary divisions. They are very similar if not identical. I think it was so considered in the ages past, of which we have any information. Both include the healing art. The one is directed to the soul, the other to the body. They are simply two different departments in the same great vocation to remove maladies and heal. I think, any one must be egregiously deficient in ancient chronological ethical truths, who is not alive to this fact. This question, bearing beautifully upon this point, propounded many "long years" ago, by the religious department; "Is there no balm in Gilead; is there no physician there? Why then is not the health of the daughter of my people recovered? Is not the vein running through this question, similar to that running through the medical profession; Why are not our patients, many times restored? It's not so much the want many times, that there is no "balm," as that they are improperly administered. How similar the mission of those departments! They are as similar as Clinics and Chirurgery; or as "Small-pox and Cow-pox;" as much so, as Erysipelas and Diphtheria; which latter was argued so earnestly on the Academy floor by a fellow member of this city.

Secularism is, in my humble opinion, far more damaging to a medical man, in the pursuit of his profession than religion or the ministry. My friend Dr. Hildreth, is not unsoiled by it. I am told that he is a large stock holder in five or six stock companies, and is managing director in some of them; and is also a native wine manufacturer, owning a large vineyard. These interests must necessarily occupy a great part of his time and attention, and thereby detract from his medical duties. I do not know that any of these secular departments smell of "brim-stone," but he had better be careful in reference to the "fire" he recommended to me. I prefer the "treacle."

In closing this rejoinder, I wish to say specifically, that it is not what Dr. Hildreth advocates now, nor what he advocated at the 22nd Feb. session, which he presents in his production in the October number, but what he said January 11th, that is available and of any force in this controversy. As he sees his error from experience, reading, and thoughtfulness, doubtless he will change, as he has already done to some extent. His expressions then, Jan. 11th was unequivocal "no essential change can be made in the disease" by diet and medication--"nothing will abort it but vaccination."

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Bi-Monthly Abstract.

Current Contributions to Obstetrics, Gynecology and Diseases of Children.

Condensed by EDWARD B. STEVENS, M. D., Lebanon, O.

THE ANTI-SEPTIC METHOD IN OVARIOTOMY.—Dr. Andrews, of Salt Lake City, reports a case: "A six inch incision was made under a continuous carbolic spray from Sass's Atomizer, which was kept in constant play during the operation. Several cysts were tapped, a quantity of the serum unavoidably flowing into the peritoneum, some extensive adhesions to the abdominal walls first tied with animal carbolized ligatures, then severed. The cyst was removed with some difficulty, its rather broad pedicle tied securely with the same ligatures, severed with the ecraseur, and returned," * * "Prof. Lister's carbolized dressing applied, and the patient frightfully prostrated (the operation having consumed over an hour) removed to a comfortable bed.—Stimulants and nourishment given ad lib. etc. Re-action came on in about twelve hours, and not an untoward symptom manifested itself during recovery. Dressings removed and fresh re-applied on the eighth, and the bowels moved by injection on the tenth day. In three weeks patient walked about the room and ate breakfast at the table. The solid portion of the cyst weighed seven pounds, being multilocular and containing nearly two gallons of serum.—*N. Y. Medical Record*, June 9, 1877.

THE MEDICAL TREATMENT OF UTERINE DISEASE.—The Editor of the *N. Y. Medical Record*, June 9, remarks very sensibly as follows: the occasion being with reference to the recent Second Meeting of the American Gynecological Society at Boston. "The address of the retiring President, Prof. Fordyce Barker was upon a subject which although not a very fashionable one at present, is certainly deserving of some little attention, Without wishing to ignore the just claims ot operative gynecology he very properly urged the giving of more attention to the medical treatment of uterine disease. There is no doubt that this latter branch of our science has been too much neglected—that many operations have been done more because they were fashionable than for any good conferred by them upon the patient. It is so easy to gain credit by such proceedings, that it is no wonder that many yield to the temptation. Then again the uterus is so non-retaliatory, that it invites all sorts of inroads upon its textural integrity. The shedding of uterine blood apparently begets an insatiety for gynecological operations, which, when once established, is sometimes dreadful to contemplate. Cases are on record in which surgeons have timidly begun with incising the os, then with excising the cervix, body, and fundus of the uterus; and lastly, when ovaries were included in the ablation, have actually mourned that nothing more was left to conquer. The fact that some of these patients get well, may help to prove that gynecologically speaking, the uterus and appendages are incumbrances. But the other side of the argument is, that women who are not operated upon, whose uteri know not the knife, the scissors, ecraseur or pessary also get well. This is certainly great comfort to the ordinary practitioner, who has a healthy fear of disturbing peritoneal coverings, of poking pessaries into the bladder, of mistaking the uterus for the ovary, and of any of the other trivial accidents which occasionally happen in the higher walks of gynecology. The fact is, that the desire to cut, twist, burn, amputate, electrolyze, and pessarize the uterus, has amounted almost to a mania. The aspiring gynecologist who has been unable to devise a new operation, invent a speculum, or modify an old one, has been compelled to infuse his energies either into a new cautery iron, novel back-acting curette, or a manifold self-acting elevator. If perchance he fails in every way in encouraging operative proceedures, he gives a new and important twist to a pessary, establishes a principle, and makes a reputation. But if the time has come for a change of opinion, if the worst must come to the worst, advocates of the new doctrine can do no more than arrest the study of surgical statistics, and, as a possible consequence, create a corner in uterine pathology. In any event we are willing to give the uterus one more chance.

A NEW MATERIAL FOR DILATATION OF THE CERVIX UTERI.—Dr. G. E. Sussdorff, of New York, communicates as follows: Having long since regarded sponge tents especially with suspicion, and having good reason for believing them to have induced grave local and constitutional disturbance in several of my patients, my distrust has now become so great that I rarely use them. Happily, however, some two years since while practicing in Georgia, I began to experiment with the agent I propose to describe in this paper, and my experience with it has been so satisfactory that I prefer it to all others. The material of which I speak is the root of the Tupelo tree, a species of Nyssa indigenous to the United States. There are four or five different kinds of Nyssa, all possessing similar qualities. The N. Aquatica is to be selected for making the best tents. It is a Southern species and grows in swamps and wet places of Georgia and Florida. The roots are the parts used. When first dug up from this watery bed they are very heavy, but after being cut in smaller pieces, and exposed to dry heat, the water with which they are saturated is evaporated, and leaves them dry and light as cork. It is of fine grained, but very soft, woody texture; the fibers are not straight, but interwoven and collected in bundles, which arrangement is peculiar to this genus.

When thoroughly dry, the root is in a suitable condition to be made into tents. For a while I used to make the tents myself, as they were needed, but my means for doing so were imperfect. I have succeeded, however, in having some excellent ones made by Messrs. Tiemann & Co., who are I believe prepared to make them in any quantity. They are easily made, requiring only sufficient compressing force to reduce them to a suitable size for introduction. After cutting the root into a smooth cylinder a little larger than it is desired to dilate the canal, it is submitted to powerful pressure, by which it may be reduced, if desired, to one fourth, one sixth, or even one tenth its original size, into a smooth fine cylinder, which remains so, after the force is withdrawn. Before being compressed, they may be most easily medicated with Carbolic Acid, Morphia, Belladonna, in fact anything except acids or astringents, that can be made into aqueous solution, without impairing its expanding power. After the tents are made they should be kept in a dry place.

A few words now with regard to some of the advantages claimed for these tents over others:

1. They are easily introduced, being smooth and firm. 2. They will not easily fall out of place, as they are very light, and soon absorb moisture sufficient to retain their place. 3. They are probably of anti-septic nature themselves, or at least will not decompose the fluids with which they are in contact; have none of the offensiveness always accompanying sponge and sea tangle and being purely vegetable are not likely to induce septic poisoning or local irritation. 4. The rapidity with which they will expand when in contact with the tissues and secretions of the uterus, is perhaps one of their chief advantages. From frequent experience with these tents, I have effected dilatation of the cervix in different cases, in various degrees, from the size of a goose quill, to that of a silver half dollar in actual time varying from one hour for the smallest, to six hours for the largest, and in no instance, was this effect accompanied, or followed, by any alarming or even unpleasant symptoms of nervous shock or local injury. The firm and even pressure obtained from these tents is well calculated to extend a most beneficial influence upon the tissues upon which they operate. In this respect the Nyssa root is far superior to sponge, or even sea tangle, especially the latter, which is very slow to absorb and expand, often requiring twelve to twenty hours for this purpose. It does not necessaily follow that the new agent is objectionable, because quick dilatation is not always desirable, for the reason that the amount of dilatation can most easily be regulated by selecting such tents as have been compressed according to a graduated scale, intended to meet every requirement.

Proceedings of Societies.

THE TRI-STATES MEDICAL SOCIETY.

(Third Annual Meeting).

Reported for the LANCET AND OBSERVER, by J. W. SINGLETON, M. D., Paducah, Kentucky.

Held at Evansville, Indiana, October 16, 17 and 18, 1877.

The Tri-States Medical Society of Illinois, Indiana and Kentucky, convened in third annual session in the Superior Court Room at Evansville, Indiana, on Tuesday Oct. 16, 1877.

The convention was called to order at 11 A. M., by Dr. G. B. Walker, of Evansville, acting as chairman *pro tem*, in place of the President, Dr. W. H. Byford, of Chicago, who had not yet arrived.

Dr. G. W. Burton, of Mitchell, Indiana, the Recording Secretary was present, being assisted in the performance of his duties by Dr. J. W. Singleton, of Paducah.

Hon. J. J. Kleener, the Mayor followed with a most cordial welcome on behalf of the city of Evansville. From which we make the following extract:

Gentlemen of the Tri-State Society:

The Committee of Arrangements have assigned to me the pleasure of bidding you a welcome to our city. Familiarly our city is called the Crescent City of the North, and although not so large in area nor so populous as our great Southern namesake, our people are none the less ready to show to you that in extending hospitalities they do not confine their favors within municipal or State lines, but, on the other hand, are ready to extend them to the border of civilized refinement.

The Oriental host, upon receiving his friends, throws open his doors and gates, welcomes his guests, assures them that before their arrival all within his castle, gardens and parks were his; now, however, his guests should consider themselves in full possession, and during their visit the property was theirs for their use and enjoyment.

Gentlemen, I am unwilling to be outdone by my Eastern friend, and although I may not be able to extend such royal favors, yet I am ready and willing, and our citizens share the feeling that in extending you our hospitalities, "such as we have we give unto thee."

We are pleased, gentlemen of the Convention, at being honored with your presence. We feel flattered that our city should have been selected as the place of your collective deliberations. Conventions of a commercial nature are frequently held to facilitate and advance the material prosperity of the public; but chiefly in the interests of the promoters of the same. Political conventions are called periodically to devise the best measures of public policy affecting the rights, liberties and the public pursuits of man. This convention I hold of infinitely greater importance although heralded with no pomp or display (as it relates to the human family) than either of the foregoing--its teachings relating to the very existence of life itself, and its practices demonstrating the rule. The king in his alarm cried "My kingdom for a horse!" The question is, what would he have given for a human life.

Gentlemen, I am admonished that from my unprofessional standpoint, a speech may be silver, but brevity and silence are golden. I have tried to impress you with the kindly feeling of our community towards you, and know that these will be realized, as the exhaustive and varied exercises arrayed in your programme assure you great pleasure and profit. Allow me, in conclusion, to again bid you a hearty welcome to our city and our homes.

The speech of Dr. Bray in behalf of the Committe of Arrangements, was too lengthy for incorporation in the "proceedings." He gave the society a brief medical and local history of "the Crescent City of the North," with his own experience in the early days of Evansville and drew a comparison between "ancient" and modern medicine. His speech was a cornucopia of good things, which was referred to the committee of publication, and the profession will soon see it in the proper place.

(Adjourned Until 2 P. M.)

AFTERNOON SESSION.

The Convention was called to order at 2 P. M. with Dr. Dr. W. H. Byford, the President, in the chair.

An invitation was received from the secretary of the Board of Public Schools inviting the Society to visit the same, in a body. Accepted with thanks, and 2 o'clock Thursday afternoon was appointed as the hour when the Convention would enjoy that pleasure.

Dr. J. S. Jewell, of Chicago, professor of nervous and mental diseases in the Chicago Medical College, being called upon to address the Society, gave a brief extemporaneous account of the vaso motor nervous system. The following is a brief abstract of his remarks:

Dr. Brown-Sequard and one of his pupils, Dr. Tholozan, made the following experiment: One hand was plunged into a vessel of iced water, while in the other the bulb of a thermometer was grasped. In a very few minutes the temperature of the hand in which the thermometer was held, fell several degrees. The question arose, of course, as to the cause of this fall in temperature. A sufficient explanation has been offered.

Next Budge, of Griefswald, found that by operating on the spinal cord, at the lower limit of the cervical, and the upper limit of the dorsal vertebræ, the same phenomena were produced on the pupil as had been by Bernard and others by operating on the cervical sympathetic nerve. Budge concluded that the portion of the spinal cord mentioned is the spinal origin of the cervical sympathetic. This part of the cord was denominated by him the *cilio spinal center.* His researches and deductions from them have been amply confirmed. He afterwards discovered another center in the lumbar portion of the spinal cord, from which the circulation of the genital apparatus may be disturbed. This center in the gray matter of the cord was called the *genito spinal.* Since then many others have been more or less certainly fixed, until now there is reason, as I think, whereby to conclude that there is a continuous line of such centers extending the whole length of the cord up into the medulla oblongata, whereby a large number of observers, such as Owsjannikow, Kronecker, Dittmar, Vulpian and others, a supreme vaso-motor center has been located, in which the whole vaso-motor system is summed up.

This supreme center dominates all the subordinate centers in the spinal cord below it.

From this vaso-motor tract in the spinal cord, two kinds of vaso-motor nerves pass out to the large and small ganglia of the sympathetic nervous system. The one kind are called *vaso-constrictors*, the other *vaso-dilators.* These nerves do not terminate in the vessels, but in the small ganglia and ganglion cells which exist in countless numbers in muscular walls of the small vessels, and through these the above-mentioned nerves act on the vessels.

The heart, also is supplied by two kinds of nervous ganglia, so it seems motor and regulator. These constitute the automatic nervous apparatus of the heart. Three nerves or pairs of nerves go to the heart—the *vagus*, a slowing nerve, the accelarator nerves of Cyon, and the depressor nerve so-called of Ludwig. The first two *go to* the heart and are motor nerves, the latter *goes from* the heart, and is a nerve of sensation to the heart. It leads up to the medulla, where it ends in a nervous center close to the nervous center for the vagus (slowing nerve for the heart), and close to the supreme vaso-motor center located in the medulla. Certain of the influences which affect this sensory nerve of the heart, are transmitted from the heart to the medulla, so as to effect in a reflex way, the vagus center, and hence, to slow the heart's action, and also to affect the supreme vaso-motor center in such way as through it, to relax the tone of the vessels of the body, so as to relieve blood pressure in the heart, or, *vice versa.* A beautiful correspondence thus exists between the extremes of the vascular system, worthy of being noted. Dr. Jewell then threw out various practical considerations of importance, and closed his remarks.

Dr. Fairbrother, of East St. Louis, Ill., proceeded to discuss some of the points in Dr. Jewell's remarks.

Dr. W. Porter, of St. Louis, Mo., next read a paper on Syphilis in the air passages. This paper was a very learned production, very exhaustive and instructive.

After discussing the symptoms of hereditary syphilis in children, as indicated in the air passages, Dr. Porter remarks:

"There is one evidence of syphilis, which I desire to call attention to at this point. It is generally found in the inherited disease, though possibly also in the acquired. After the mucous membrane and periosteum overlying the bones which form the roof of the mouth has been infiltrated with syphilitic inflammatory matter, softening may take place and the bones become impaired and weakened. The strength of the arch being lost, the tendency is a narrowing of the fauces and a consequent increase in the height of the roof of the mouth. The other symptoms may, for the most part, pass away, but this remains, and from a number of cases examined and the corroborative testimony of my friends, I am inclined to add this to the list of symptoms of hereditary syphilis. I have found this condition in children who had undoubted syphilitic peratitis and the notched teeth of Hutchinson, as well as in cases where these latter were absent, yet where the history and other evidence left no doubt as to the state of the child's system. It has been pointed out that there is often an unusually high arch in the mouths of idiotic children, and knowing how often such are the offspring of syphilitic parents, it may not be unreasonable to conclude that the idiocy and the mal-formation are from one and the same cause.

The paper gave a sketch of the symptoms and developments of the disease in the air passages, with the best ascertained mode of treatment. It was listened to with close attention and interest.

On motion it was referred to the Committee on Publication.

After which a few remarks on the addresses were made by Dr. M. J. Bray, of Evansville, in which he asked for information in regard to syphilis being transmitted to the offspring by the male parent.

Dr. Kellar, of Hot Springs, Ark., replied in a few remarks that he was perfectly satisfied that syphilis was transmitted by the father to the offspring, and cited several instances to prove the truth of his assertion. He closed his remarks by asking Dr. Porter if he used the application of caustic for the purpose of protection or for benefit to his patient. Dr. Hibberd, of Richmond, Ind., says he firmly believes it to be the case that syphilis is inherited from the father, and gave several illustrations. Dr. Smith, of Vincennes, agreed with him, and also gave several illustrations, which were very suggestive.

Dr. Linthicum, of Evansville, holds the same opinion.

Dr. Keller says that syphilis can be entirely eradicated from the system. He believes that the water of the Hot Springs has a very beneficial effect on syphilis, and also has the effect on the system to allow the remedies to be given in very large doses—that as much as one ounce of iodide of potassium has been given daily, and it is at most impossible to salivate when using the water; and he gave some very interesting and instructive statements concerning the water.

Dr. Owen stated that he had given as much as nine drachms of iodide of potassium per day.

Dr. Linthicum says he has given as high as an ounce per day.

Dr. Edwin Walker states that secondary syphilis may be transmitted to the offspring, tertiary is not, and that six weeks after birth is long enough for hereditary syphilis to appear. He believes it is transmitted by the father.

Dr. Porter is of the opinion that it is transmitted by the father; thinks that syphilis can be eradicated from the system, but does not think it safe for a physician to tell the patient he can cure him of syphilis.

Dr. Keller said syphilis could not be cured without mercury.

Dr. Freeland, of Indiana, moved that any one person be not allowed to speak twice upon any one subject, the first to be ten minutes long and the second five, except the writer of the paper. Carried.

A recess of five minutes was then taken during which time any person who wished might join the society.

After Prof. J. W. Compton had read a paper on State medicine and hygiene, the Chair appointed Dr. Dening, of Illinois, Dr. Beard, of Indiana, and Dr. Letcher, of Kentucky, a Committee on "Time and Place of next meeting," to report to-morrow.

On motion adjourned until 7:30 o'clock P. M.

NIGHT SESSION.

After assembling at night the discussion of Dr. J. W. Compton's paper was postponed till to-day, to allow the participation of those to arrive.

OBSTETRICS.

Dr. George B. Walker, of Evansville, read a long and exhaustive paper entitled: "Observations and Experience in Practice, particularly in reference to Obstetrics;" which included a report of 824 obstetrical cases, the properties of the various presentations and instrumental and other operations. The more important cases were reported in full. After summing up his experience, rules of practice were deduced. The paper was full of practical and useful information.

The President compared it to the relation of a soldier's experience after a long and honorable campaign.

Dr. J. F. Hibberd referred to the remarks in the paper in regard to chloroform and ether, and discussed the relative properties of both. He thought chloroform increased the liability of the patient to paralysis of the heart. He preferred to use ether, which, if skillfully used, would accomplish all that chloroform could.

This precipitated a long and general discussion upon Eclampsia and the proper treatment, which was participated in by Drs. Freeland, Morgan, Walker, Byford, Hibberd and others.

A committee on time and place of next meeting was appointed by the chair consisting of Dr. H. H. Deming, of Pana, Illinois, Dr. F. W. Beard, of Vincennes, Indiana, and Dr. J. H. Letcher, of Henderson, Kentucky.

Dr. J. W. Compton suggested a way to use chloroform advantageously, and with economy, by placing the saturated cloth or handkerchief in the bottom of a glass tumbler. He is thus enabled to give his patient both chloroform and air at the same time, and save the anæsthetic by covering the tumbler, when not in use.

The President appointed the following members as the committee on nominations: Dr. J. W. Gerrish, of Seymour, Indiana; Dr. T. A. Rafferty, of Palestine, Illinois and Dr. J. W. Pritchell, of Madisonville, Kentucky. Adjourned until 9 A. M. Wednesday.

WEDNESDAY'S PROCEEDINGS.

The society was called to order promptly at 9 A. M., with Dr. Byford in the chair. The discussion on Dr. G. B. Walker's paper was resumed.

Dr. Jewell, of Chicago mentioned some points in the therapeutics of chloroform which were omitted yesterday. The doctor also incidentally, advocated the use of the forceps in labor much more frequently than they are commonly used, in certain cases. Dr. Mapsey, of Indianapolis, and Dr. Freeland, of Freelandsville, Indiana, took part in the debate. Dr. G. B. Walter concluded the argument, and his report was referred to the publishing committeee.

A paper on Chronic Constipation by Dr. Hibberd, of Richmond, Ind. See Art. 2.

Dr. Center reported an interesting case of enlargement of the rectum. Germain to the subject under consideration, Dr. J. H. Ireland, of Louisville recommended large injections of water to relieve hemorrhoids and constipation of the bowels.

Dr. J. W. Singleton, of Paducah entertained the Convention with "Remarks on Social Conservatism," which were referred to the publishing committee.

Dr. Wm. Porter, of St. Louis, Missouri resumed his remarks on

"Syphilitic diseases of the Throat." Dr. Rumbold, of St. Louis, gave the society interesting and instructive illustrations on the treatment of catarrhal diseases.

(Adjourned Until 1 P. M.)

WEDNESDAY AFTERNOON.

The convention was called to order at 1:30, when Dr. Singleton, of Kentucky (by request), read a paper by Dr. John L. Cook, of Henderson, Kentucky (Dr. C., not being present) on

MALARIAL COMA,

from which we are pleased to extract the following:

"This is the season in which malarial fevers always prevail in this section of country. There is one practical feature of this class of diseases to which I wish to direct your attention. I refer to malarial coma. It is well-known to country practitioners and requires prompt and decided treatment. The physician is called to see a patient whom he finds with a high fever, and in a stupid condition, frequently not being able to get any answer from the sufferer. This taken in connection with the previous history of the case, malarial surroundings, and the time of year; confirm the diagnosis.

Now what ought we to do when a patient is found in this condition? One will say here is active congestion of the brain, the patient's life is in peril, from the cerebral complication, therefore bromide of potassium or other cerebral sedatives, with ice to the scalp, would certainly be demanded. Besides, if the heart beat very strong an arterial sedative might do good by diminishing the arterial pressure on the brain. This all seems well enough. And in former years I was in the habit, to some extent, of relying on such a course of medication, with the free use of quinine; for I was afraid of the physiological effects of the quinine on the already congested brain when not controlled, in some measure, with a cerebral sedative. But of late years, from the lesson of experience, I have pretty much abandoned any other treatment than the free use of quinine or cinchonidia in malarial coma.

To take time to prepare the system with cerebral or arterial sedatives, or cathartics, is only losing a fine opportunity, which, if neglected, may result fatally to the patient. So when I discover any one suffering, and in the danger I have described, I order quinine in from ten to twenty grain doses immediately without any further preparation, and repeat the dose every three or four hours until forty or sixty grains are administered. This amount destroys the poison on which the coma and fever depend, and therefore becomes a direct means of relief. And when I thoroughly impress the organism with this alkaloid I rest content, for I am satisfied there will be no recurrence of the paroxysm, and it is the best remedy for the present coma.

It may not be amiss to state that for the last three years I have given the sulphate of cinchonidia almost entirely as a substitute for quinine, and with the most happy results. It is much cheaper than quinine. It is nearly, if not quite, as reliable. But from long habit in the use of quinine, as well as respect for the opinions of medical friends who differ from me as to the potency of cinchonidia, I always deem it best to resort to quinine in dangerous cases of malarial fever. Dr. Wm. M. Hanna, of our city, who has treated a number of cases of malarial coma, relies on the prompt use of quinine, and is highly gratified with the results in his practice. The point is, we do not waste time in an effort to abate the comatose condition before we resort to the preparations of bark. When we see patients thus afflicted we begin that moment with the quinine, and while sometimes they may be unable to speak, they can usually swallow. And if they can not do so, then the medicine must be thrown under the skin. To delay the use of quinine at this juncture may cost the patient his life, and, while I am opposed to expectant treatment in any case, unless you do not know what is the matter, I then should be more opposed to it in the emergency.

Abnormal states should be made right if possible, and to accomplish this end, definite ideas should direct our course. Physiological therapeutics has done much to establish rational in the place of expectant treatment but much more remains to be done. Malarial coma I may add, is considered a form of pernicious intermittent fever, but as I desired this article to be very brief, I merely wished to refer to this peculiar feature of the disease, because of the importance of prompt medical aid and the danger of too much stress being laid upon what might be termed congestion of the brain and therefore failure to rely on quinine as the great sheet anchor when there is such imminent danger.

Dr. Morgan gave an instance that came under his observation, that happened in 1838. The patient was fifty years old and insensible from malarial coma; gave 12 grains of quinine and pulverized capsicum. The patient got well after being given up by other attending physicians. He related other cases of the same kind.

Dr. Beard, of Vincennes, thinks cincho-quinine is the best substitute for quinine but does not think it so good a remedy.

Dr. Center, Dr. Jewell, Dr. Freeland, Dr. Gerrish and Dr. Singleton also discussed the relative merits of the various alkaloids of Cinchona barks — the majority of the speakers "not yet willing to trust any of *that family*," but the sulph. quinine in "*bad cases.*"

Dr. J. A. Ireland, of Louisville, then read his report to the section on Obstetrics and Gynecology, on "*Some of the duties of the* obstetrican and gynecologist," from which we take the following:

Purity of character should distinguish every obstetrican and gynecologist for one reason if no other. He is invited into the family circle, he is frequently made familiar with family secrets, which never would be his, were it not for his vocation. There is a plain and most solemn duty resting upon him to never under any circumstances, reveal those secrets to the world. All the solemnity and sacredness of the confessional can not be more binding. It is the duty of the obstetrican and gynecologist to protect the character of his patient when wrongfully assailed. The physician who would betray the confidence imposed by reason of his office should be held responsible before the high courts of public opinion, if not before the law. It is the duty of the obstetrican to give professional advice relative to the care of health and other matters pertaining to the fulfillment of one of woman's great missions on earth, the bearing of offspring. The conscientious obstetrican must be, to a certain extent, a counselor, as well as a worker, for the benefit of woman. Timely advice will frequently prevent the necessity for grave operations, such as all physicians are, more or less, familiar with. The physician who would refuse such advice should be held responsible for the consequences, which are known to be inevitable. It is the duty of the obstetrican and gynecologist to guard his own reputation for purity of character. We know it has been said that doctors have sometimes fallen, that they have, we may, with tears in our eyes, acknowledge the painful truth. But may *we* not say that ministers of the Gospel of our Lord Jesus Christ have done the same; that lawyers and others have also fallen. But does all this prove that the ministerial office should not be pure and sacred? or that, as a general rule, it is not so? or that the legal profession should not have any pretensions to honor and honesty?

Dr. Ireland's paper was referred to the Committee of Publication.

The Committee on Publication which was appointed to make nominations for officers for next year, reported as follows:

OFFICERS OF THE ENSUING YEAR.

President—J. F. Hibberd, Richmond, Ind.
First Vice President—J. W. Gerrish, Seymour, Ind.
Second Vice President—J. W. Singleton, Paducah, Ky.
Third Vice President—Dr. Fairbrother, St. Louis, Mo.
Recording Secretary—G. W. Burton, Mitchell, Ind.
Treasurer—F. W. Beard, Vincennes, Ind.
Publishing Committee—J. W. Compton, G. B. Walker and Dr. Lining, Evansville, Ind.

STANDING COMMITTEES.

Surgery and Anatomy—J. W. Thompson, Paducah, Ky.
Gynecology and Obstetrics—J. Hale, Owensboro, Ky.

State Medicine and Hygiene—J. H. Letcher, Henderson, Ky.

Practical Medicine—S. H. Charlton, Seymour, Ind.

Special Committee—Influence of the Thermal waters of Arkansas in the treatment of diseases, by J. M. Keller, Hot Springs, Ark.

The report was received and adopted unanimously.

Dr. Dudley S. Reynolds of Louisville, then read an interesting and most valuable paper on "*cis-toid cicatrix*," which was on motion, unanimously referred to the Publishing Committee.

Dr. S. E. Munnford, of Princeton, Indiana, followed with a well written and exceedingly suggestive essay in answer to the question. "*Is meddlesome midwifery bad?*"

The question, embraced in the points advanced by Dr. Munnford, were pretty thoroughly discussed by Dr. Daniel Morgan, Drs. Jewell, Byford, Harvey, Ireland, Keller, Owen and Charlton.

A committee on Necrology was appointed by the chair, consisting of Dr. J. F. Hibberd, Dr. H. M. Smith and Dr. Pennington, to report upon the loss to the society by the death of Dr. Ezra Read and Dr. J. B. Armstrong, of Terra Haute, Indiana.

Dr. Edwin Walker then read a truly valuable report on "syphilis of the nervous system," which for want of time, was not discussed as it should have been; but was referred to the committee of publication.

The society adjourned to supper--and afterwards to meet at the Cumberland P. Church, to listen to the address of Dr. Byford the retiring President.

AT NIGHT.

The Old Cumberland P. Church was crowded to hear the address of Dr. Byford on "*Some of the Evils resulting from our rapid advance in civilization.* (See Article 1.)

The society adjourned at 9 P. M., to attend the "reception" at the residence of Dr. E. P. Bacon, and then to commence again at 9 A. M., Thursday.

THURSDAY'S PROCEEDINGS.

The convention was called to order promptly at 9 A. M. President Byford in the chair.

The report on the adoption of a constitution was post-poned indefinitely.

Dr. J. F. Hibberd, of Richmond, Ind., Chairman of the committee on necrology, made the following report in regard to the death of the late Dr. Ezra Read and Dr. J. B. Armstrong, both of Terre Haute, Ind., who were members of the society:—

Dr. Ezra Read, M. D., of Terra Haute, Ind., a member of this society, died at his home, since our last annual meeting. Dr. Read was a man unto whom the Creator gave "ten talents," and he kept them bright and useful during a long life. As a citizen, he was esteemed by his fellows who knew him as one who did right because it was right; as a physician, he was a man of mark, learned and discreet; he discharged the duties of an army surgeon in two wars with honor to the profession and comfort to the soldiers under his care; and in peace, among his patrons at home, he was held in highest consideration, and in the end, wrapt in the mantle of a good life, he laid him down to his eternal rest.

Resolved, By the Tri-State Medical Society, that this Society cherishes the memory of Dr. Ezra Read, late of Terra Haute, Ind., as an honest man, a useful citizen, an accomplished physician and a most honored and worthy member of this body.

James B. Armstrong, M. D., of Terra Haute, Ind., a member of this Society, was murdered while in the country on professional duty since the meeting of this body last year. Dr. Armstrong was in the prime of life, and the assassin's arm struck down a member of our guild, who gave promise of a life of unusual prominence and usefulness. He had availed himself of the ordinary means of storing his mind with medical knowledge with more than usual success, and then supplemented this with the extraordinary means of travel and intercourse with foreign men and institutions, to such good purpose that when called to public professional service as an army surgeon, he was found standing high among the many distinguished men who served in that capacity, and among his fellows in the every day duties of his professional life, he was held the peer of the best.

Resolved, By the Tri-State Medical Society, that in the death of Dr. James B. Armstrong, late of Terra Haute, Ind., this Society laments the loss of one of its members in the midst of an active and useful life, who was not only honored for his present acquirements but held in highest regard for the bright promise for the future, which was so untimely cut short by the felonious hand of violence.

Dr. J. M. Keller, of Hot Springs, Arkansas, moved that memorial pages be dedicated to the memory of Drs. Read and Armstrong. Adopted.

The committee appointed to select the time and place of the next meeting reported that they, after deliberation, had selected Springfield, Ill., as the place, and the second Wednesday of November, 1878, as the time for the assembling of the Convention. The officers of the society were instructed to confer with the proper authorities of Springfield in order to ascertain whether it would be agreeable for the society to meet in that city.

The report of Dr. E. H. Luckett, of Owensboro, Chairman of Finance Committee, was received and accepted.

Dr. J. W. F. Gerrish, of Seymour, Ind., offered the following resolution, which was unanimously adopted:

Resolved, That we, the members of the Tri-State Medical Society assembled, take this occasion to return our warmest thanks to the medical profession and citizens of Evansville, for the very kind and courteous treatment during our visit and continuance in their beautiful city, and that we shall always hold the same in kindest remembrance.

The following resolution was offered by Dr. Smith, of Vincennes, Ind., and also unanimously adopted:

Resolved, That the members of this society tender their cordial thanks to Dr. C. P. Bacon and his estimable lady for the cordial and brilliant reception given them at their residence on the evening of the 17th.

A report of the Treasurer, Dr. A. Patton, of Vincennes, was received, read and adopted, showing a balance of $40 00 in the treasury to date.

On motion of Dr. Charlton, of Seymour, Ind., the Secretary was allowed $50 00 per annum for his services.

Dr. J. H. Letcher, of Henderson, Ky., read an interesting and exceedingly valuable paper. on "intestinal inflammation in children," written by Dr. J. B. Cook, of Henderson, which was referred to the Publishing Committee.

Dr. Harvey, of Indianapolis, read a very interesting paper on "the use of the elastic ligature in the treatment of various forms of fistula."

Dr. J. M. Keller, of Hot Springs, Arkansas, spoke briefly of the success of the Tri-State Association and its valuable results to the profession.

Dr. T. M. Stevens, of Indianapolis, read a fine paper entitled, "Some Thoughts connected with the Public Health of Indiana," which was well received. It was referred for publication.

Dr. E. H. Luckett, G. B. Walker, A. H. Owen, and Dr. Daniel Morgan, resumed the discussion of Dr. Harvey's paper, on the "use of the elastic ligature." Dr. Walker called attention to the fact that the perineum of primiparus women is lacerated more or less, in a majority of cases, and most frequently heals by granulation without any surgical interference whatever.

Dr. G. W. Burton, (the Recording Secretary) of Mitchell, Indiana, proceeded to read (by request of the Secretary) his report on "Public Hygiene," entitled "Some Facts for the People," from which we make the following extracts:

At the annual meeting of the Indiana State Medical Society, in 1875, a committee was appointed consisting of Dr. Thad M. Stevens, Chairman, the late Dr. Athon, Dr. Harvey and myself, to memorialize the Legislature, and secure the enactment of a law creating a State Board of Health. Since that time I have been giving my leisure to the subject of sanitary science, I have, as best I could, canvassed the subject of drainage for health, sewerage, ventillation of public and private buildings, (more especially with reference to public schools) privies and water closets, contamination of water supply, food, especially table syrups, illuminating oils and avoidable diseases.

That I might be able to present some facts that could be utilized in securing the enactment of the law, I have prepared and sent to prominent physicians in twenty-one towns of the State the following questions:

1. Does your Council or city authorities favor the enactment of a law creating a State Board of Health.

2. Will you give your influence in that direction at the meeting of the next Legislature.

3. Do you keep a register of births, marriages and deaths?

4. Have you had any epidemic detrimental to life and health during the last year?

5. Have you any local nuisances or noxious trades?

6. Has your town been visited in the last year by small-pox, scarlet fever, diphtheria, or any of the contagious diseases?

7. Has the health of your town or surrounding country suffered from any cause that might have been prevented?

8. Could the health and prosperity of the surrounding country be improved by systematic drainage?

9. What disposition is made of sewerage?

10. Have you observed any poisonous wall paper?

11. Have you observed any impurities in table syrups?

12. Have you inferior or dangerous illuminating fluids in the market?

11. Have you any definite plans for ventilating public and private buildings?

14. Is your water supply contaminated from cess pools, vaults, privies, cemeteries or other causes.

In answer to the first question the reply has invariably been No. Quite a number of prominent men in the profession believe that the present sanitary laws are sufficient.

The second question I am sorry to say that forty per cent. will oppose the enactment of any law making appropriations for the purpose named.

In answer to the third, No.

Query No. 4—From three towns there have been typhoid fever. In one the outbreak was attributable to the decaying of sawdust and debris about a saw-mill. The mill was situated on the bank of a small creek, and the dust from the mill had been accumulating for two or three years. Twenty-one cases, with three deaths, including the proprietors of the mill.

No. 5—From three towns, slaughter houses that during packing seasons are almost unendurable; cannot tell what amount of sickness may be fairly traceable to them. From two starch factories.

To the sixth question from two towns have had small-pox; one, nine cases and three deaths, another, fifteen cases and three deaths. Taking the hypothesis of Dr. Carroll, Sanitarian of Missouri, in

1876, the cash value of the State and community to the average man for life, at $2,000, the loss to the commonwealth in those two towns alone and from one cause, and that avoidable, is $16,000, (to say nothing of suffering and expense of the recoveries), which would pay the expense of a State Board of Health for eight years From three towns which have had diphtheria twenty per cent. of the cases were fatal.

From ten scarlatina and from three measles, comment on contagious diseases from a sanitary point is unnecessary.

To the seventh question the answer from several towns were Yes. Small-pox, measles, scarlatina and probably other avoidable diseases.

To the eighth question from several localities in the central and southern part of the State the answers have been that a large proportion of the autumnal diseases for the past three years may be fairly traceable to the decaying vegetation in the low or table lands that have been inundated, and that could have been so drained with a compariatively small outlay as to not only avoid diseases but saved thousands of dollars to the agricultural interests.

From one county it is estimated that the loss sustained by the farming community by overflowing of the low land (that might have been avoided by proper drainage) will amount to the enormous sum of $200,000. From another that the best meadow land, in place of yielding its usual large crop, has instead, produced disease and death.

There is so far as I know, in the level or table lands, but one opinion with reference to this question and that is that systematic drainage would greatly improve the agricultural resources as well as the health of the inhabitants.

To the ninth question—Have not been able to elicit any reply that is satisfactory. Some have cess pools and sewers. Conducting it often to the water supply—in no case an effort to utilize.

To the tenth question—Have elicited no reply. I have gathered a few specimens on sale in our place such as will probably be found in every town and village of the country where not prohibited by law. My specimens contain from 1 and 16-100 to 8¼ grains of arsenic to the square foot. I believe in all the specimens examined [containing arsenic] there is more or less green in the colors. Arsenic may enter the body by other avenues than by the mouth, for it may be absorbed by the skin or inhaled with the breath.

The danger from equal doses of the poison is usually greater when it is inhaled than when it is swallowed, for we take food only at distant intervals, while we breathe continuously. Persons engaged in smelting arsenical ores are compelled to use extraordinary precaution to avoid inhaling the fine arsenical dust on account of the great danger of poisoning by this means.

Eleventh query. The reply is generally, have given the matter no thought. I have obtained five specimens, four of which I find to be impure and unfit for use. This syrup, (marked 1,) a light, yellowish brown color, and looks like a very respectable syrup, has a decidedly acid reaction with blue litmus paper, turns black where sulphate of ammonia is added to it, and gives a heavy precipitate with oxalate of ammonia.

On examination I find that the body of this syrup is made of starch sugar (glucose) instead of cane.

The amount of foreign impurities I can not give at present. It contains sulphate of iron and sulpho-saccharate of lime.

No. 2 contains starch sugar, with sulphate of iron and lime, and is much the same as No. 1; contains more dirt.

No. 3, nearly pure cane sugar syrup.

No. 4 is Hoosier sorghum. All the specimens of this class that I have examined have a decided acid reaction with blue litimus.

No. 5 is mostly sand and dirt, and is such as grocers will tell you is rather an indifferent article, and it fairly sustains its recommendation.

Dr. Letheby, in his admirable work on food, (L & B.), says that the Anglo-Saxon population of England and America consumes annually 51.4 pounds of sugar per head. The Latin race, including the inhabitants of France, Italy, Spain, Belgium, Portugal and Switzerland, consume 12.75 pounds per head. The Teutonic race of the Zollerin, Austria, Holland and Denmark, consumes 73 pounds per head; while the poor of Russia, Poland, Turkey and Greece consumes 33 pounds per head.

You will readily see that our people consume enormous quantities of sugar, as compared with other races. Hence the great importance of the quality.

In the most of these syrups lime is the largest adulterant. Lime may be easily recognized in the syrup by a solution of oxalic acid. Dissolve one ounce of oxalic acid in a pint of rain water. If the solution is not clear, let it stand for a few hours, till it settles, and then pour off the clear solution into a clean bottle.

To test the syrup, place a table-spoonful in a tumbler half full of rain water, stir it up, and add a table-spoonful of the oxalic acid solution. If there is much lime in the syrup it will show itself by a white precipitate, the amount of which will give some measure of the amount of lime present.

12. To this question I have replies from ten towns, one in particular writes that we have all qualities from 110 to 175° Fahrenheit, nearly all explosive, a number of explosions of coal oil lamps with loss of life. In my town and vicinity there have been three deaths, the result of lamp explosion. One a patient of mine, the most intolerable suffering that I ever witnessed. I suppose there is not a community in all this great Mississippi Valley but has had its accidents from this cause.

13. No definite answer. So far as I have been able to learn, there is as yet no plan for ventilating the illy constructed build-

ings of the country, so as to keep them from an injurious amount of carbonic acid, when occupied, except by the old time fire place or grate. That the children of the public schools, colleges and universities are the greatest sufferers from this cause, there is no doubt. During the fourth anniversary of the Mitchell District Medical Society—February, 1877—held in the law department of the State University, in the city of Bloomington, I was more than ever impressed with the fearful results of this great and growing evil.

This paper was discussed by Drs. Hibberd, Stevens and others at some length.

An invitation from the Sisters of Charity to visit St. Mary's Hospital was received through Dr. Austin and thanks returned.

Drs. Stevens, Compton and Burton were appointed a committee to prepare the papers on State Sanitation and have them published in the public journals.

Dr. J. Hale, of Owensboro, gave some specimens of his operations on the eye, which were very interesting to the members of the profession.

Dr. Hibberd, Dr. Stevens, Dr. G. G. Barton of Washington, Indiana and Dr. E. W. Beard of Vincennes Ind., made important suggestions in reference to the sanitary regulations of communities and States.

Dr. Daniel Morgan, of Evansville Indiana, and Dr. J. W. Singleton, of Paducah, Ky., were appointed by the Chair, to conduct the President-elect to his seat. This duty having been performed, Dr. Byford introduced his distinguished successor who in fitting terms, gratefully acknowledged the honor bestowed upon him.

On motion of Dr. J. H. Letcher, of Henderson, Kentucky, the thanks of the members of the TRI-STATES MEDICAL SOCIETY were unanimously voted to Dr. Byford, for the very able, dignified and impartial manner in which he has discharged the duties of the office of President.

Adjourned at 1:30 p. m., to meet in the Fourth Annual Session at Springfield Illinois, on *the second Wednesday in November*, 1878.

From Tuesday morning October 16, to Thursday afternoon, the 18th seventy-five members (new and old) were *registered* on the books of the Secretary, and there were fully as many more medical men present, who did not apply for membership in the Association.

Editorial.

STATE BOARDS OF HEALTH ETC., AND IRREGULAR PRACTITIONERS.

The last legislature of Illinois passed a bill establishing a State Board of health in that state. The Governor having the appointing power, placed upon this board a certain number of Regular and Irregular physicians, whether they were Homeopathists or not we are not, at present, informed. This we believe is the only state that possesses a State Board of Health having Irregulars as a part thereof. We have no war to wage against so-called Irregulars, but believe that elements of discord, will without doubt, thus creep in, and so ruin the efficiency of such organizations.

We object to such a mixture — it is said that many persons employ Irregulars, so we should be willing to work with such in close fellowship in teaching the people how to preserve their health, that the interests of humanity calls for co öperation; that the patrons of each class have a right to be represented, etc. Upon the same principle, then ought the code of ethics to be abolished, at least so far as to permit all physicians to consult at the bed-side of the sick, for if it is correct that they consult thus to prevent; how much more to cure. Either let us stop; "whipping the devil around the bush" by means of trickery and false logic and demand that the American Medical Association abolish the code, or else refuse to teach with those we will not meet at the bed-side, such shilly shallying is disgusting in the extreme.

It is asserted that in Illinois the profession has accepted the situation and endorses the movement that places incongruous elements (under present reading of the code) upon the board—we do not know of any such acceptation upon the part of any of the profession except those who have accepted positions on the board, simply because the law is in force and physicians can do nothing except to work against it and have it repealed, is no sign that the profession has accepted and endorsed—does one accept or endorse something, simply because he has no power over it? Again, we say let us take one of the two courses above mentioned viz: abolish the code or honestly live up to it. If abolishment is the course the profession wishes to pursue, then let them at the next meeting of the American Medical Association, demand that hereafter the code be of no effect and permit each one to do for himself. If the latter course be wished for, let the entire profession of such states speak out in advance of any legislature upon this or other subjects that may involve the question of ethics. It is none too soon to do so now, and each county society should act at once by proper resolutions, condemning the action as seen in Illinois and expressing themselves in full upon the subject, for the profession as well as the people need educating upon this and other points. S.

DR. J. B. MATTISON has opened Parish Hall, Brooklyn, New York, as a private medical home for opium habitues. No other class of patients will be admitted Dr. Mattison has for some years given special attention to this subject, and will give satisfaction to those who place themselves under his care.

IN the article on "Rupture of the Choroid." By Dr. W. R. Amick in our last issue, the cuts were by mistake transposed.

A SCHOOL of Medicine has lately been organized in Toledo, in connection with St. Vincent's Hospital. The faculty is composed of very efficient and able men who will no doubt accomplish a good work. The school is designed for a preparatory education and not for the conferring of degrees.

THE Cincinnati College of Medicine and Surgery, has abolished the Spring graduating course of lectures. Hereafter the course of lectures will correspond with that given in other Western Colleges, all fees being the same as charged in other regular schools of this city. We most heartily congratulate the friends of The Cincinnati College of Medicine and Surgery on the course pursued by the faculty and trustees in this matter, as it is a long step in the right direction.

THIS number completes the volume of THE LANCET AND OBSERVER for 1877. The year that is past has been one of unusual health in most parts of the country, there being a general freedom from epidemics or unusual prevalence of endemic diseases. In fact the only malady that seemed to prevail to any considerable extent has been an acute affection of the Pocket Nerve. This disease has spread over nearly every section of the country until it has actually become universal and even fashionable. Climate, altitude or longitude seems to have had no effect in staying its progress, and notwithstanding the application of a great variety of remedies, stubbornly holds its own, refusing to yield to cathartics or tonics, elixirs or alterants. A universal symptom of the disease is, extreme hyperæsthesia of the nerve. Any attempt made to afford relief to the sufferer will in nearly every instance produce diaphoresis, the most heroic treatment will often produce no other apparent result, nor does a mild course seem to be more effectual, the result from either plan——nil. Electricity has been tried, sometimes producing an apparent cure, while in other instances the patient is only—shocked. When the nerve has been diseased for some time and has assumed a chronic type, it has occurred to us that an occasional use of Prof. Gross's lost art in Medicine, (blood-letting) might prove effectual, the remedy should certainly be tried in some aggravating cases.

All those who are afflicted with this distressing disease complain of a deficiency in the amount of both their white (argentum) and yellow (aurum) corpuscles, with atrophy of their green fibrous tissue. One of the worst phases of the disease is its contagious character; one person severely attacked will often produce distress in a whole community. Our readers have all witnessed the various phenomena produced in those suffering from this common disorder, the dire effects frequently produced, etc., and will doubtless be glad of an opportunity to assist in the erection of a memorandum that will be higher than ever Gilroy thought of flying his kite, over the head of the man who will discover and make known through the pages of the LANCET AND OBSERVER a sure cure for *Hyperœsthesia of the Pocket Nerve.*

☞ SUBSCRIBERS will please remember to forward their dues *promptly*, so as to insure the uninterrupted delivery of the Journal.

Correspondence.

J. C. CULBERTSON, M. D,

Sir:—On the 5th of July, 1877, I was hastily called to Mrs. M. G. age 27, wife of G. B. N. of Liberty Township, Union County, Ind., case, abortion, patient 5 months pregnant, profuse hemorrhage; delivered a fœtus with umbilical cord attached to placenta; intercurrent 3 months. I was called to the same lady Oct. 2d, delivered her of a well formed fœtus with umbilical cord and placenta, continued under treatment until the night of October 12, 1877, when the third fœtus with umbilical cord and placenta was delivered; *all* amazed and *astonished*, I had Dr. H. H. Moore, of Liberty, called in consultation; the patient recovered without further trouble.

Yours, respectfully,

B. D. HUTCHINSON.

Messrs. Editors: Hamilton, Ohio, Nov. 30, 1877.

I believe it is not generally known that the Hæmatoxylon Campeachionam possesses the property of a deodorizer. I made this discovery over fifteen years ago, while prescribing a decoction of the bark for a troublesome case of Chronic Diarrhœa, attended with offensive discharges. I prescribed it as an astringent; it was several days however, before I was able to control the frequency of the discharges, but I was agreeably surprised to find that the offensive odor of the stools had entirely disappeared in twenty-four hours. I now determined to test it as a topical application the first opportunity that afforded, and in this, I had not long to wait. Mr. J. B. of this place consulted me in regard to his wife, who was at the time suffering from a scirrhus of the mamary gland, which had been removed twelve months before by the late Surgeon, Geo. C. Blackman, but had returned. I found the scirrhus was as large as a gallon measure, in the center of which was a deep irregular sinus, from which issued a discharge of the most sickening and terrible odor I ever met with. The lady was emaciated and beyond all hopes of recovery, but it was on account of the odor I was consulted, as it was so terrible the husband informed me he could no longer retain hired help. He also stated he had been several times to see Prof. Blackman, who had prescribed various remedies without effect. I prescribed the following:

R. Hæmatoxylon Campeachionam.
Axungia aa℥.

Sig.—To be thoroughly rubbed into a pomade spread on parecls of lint, and laid in the sinus.

The husband informed me that every unpleasant odor had disappeared in less than an hour after making the application. I have since then relied exclusively on the above formula as a deodorizer in scirrhus. Sloughing and indolent ulcers, its astringent properties makes it applicable to such cases where there is a discharge of pus. I hope the members of the profession will give it a fair trial and report the results.

Respectfully,

H. MALORY, M. D.

Editors of the Cincinnati Lancet and Observer:

In the October number of the American Practitioner, published at Indianapolis, is an editorial: "Every Doctor his Own Boswell;" in which the contemplated work, to be issued under the supervision of W. B. Atkinson, of Philadelphia, is condemned; and again in the November number of the same publication are two letters. One from an "Eminent Physician" and the other from a "X Roads Doctor" endorsing such views. Whether a work produced upon the plan so condemned is right or wrong we say not. But the writer of the editorial in the October number of The Practitioner, the "Eminent Phpsician, " X Roads Doctor" and "all the rest of mankind," if they will take the trouble to examine a work called "Sketches of the Prominent Citizens of 1876," and published the present year at Indianapolis, will find upon its pages the "Physicians of Indianapolis". Some professors and some not, but among them the full grown historical sketch of the worthy Editor of the Practitioner will be found, his birth, his marriage, his success, his worth and elegance, are all there. Certainly the gentleman who wrote the editorial referred to was not the Editor, for he is consistent and would not ———.
Was it fair however, to place the production of another in such a position that it might be taken for his own? thus, subjecting himself to criticism from some. The two works are arranged upon the same plan, and are similar in another respect, their prices being ten dollars each. "If it would be wrong to let your light shine" in the Philadelphia work, for the same reason the Indianapolis publication should not be countenanced. No! the Editor could not have written "the editorial." ARGUS.

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Reviews and Notices.

Transaction of the International Medical Congress of Philadelphia, 1876. Edited for the Congress by John Ashhurst, Jr., A. M., M. D., Fellow of the College of Physicians of Philadelphia, etc. Philadelphia: printed for the Congress. For sale by Robert Clarke, & Co., price $7,50. This magnificent volume of 1153 pages is an enduring monument to the intellect, energy and enterprise of the medical profession.

The volume contains all the Addresses delivered before the Congress in its General Sessions, and with few exceptions, all the papers read in the several sections, and by them recorded for publication. Abstracts of the discussions which ensued upon the reading of the several papers are appended, also, an account of the project of holding an INTERNATIONAL MEDICAL CONGRESS, and of the Centennial Commission, by James H. Hutchinson, A. M., M. D. The labors of the editor are deserving of the highest commendation; the collection, arranging, supervision of printing, proofreading, and issuing of such a volume involves a large amount of intelligent and systematic work. It is a pleasure to say the work is admirably done.

Fat and Blood and how to make them. By S. Weir Mitchell, M. D., Member of the National Academy of Sciences, etc., Philadelphia. J. B. Lippincott, & Co., for sale by Robert Clarke, & Co., price $1,25.

This little brochure was written to illustrate how both, in private and hospital practice, certain methods of renewing the vitality of feeble people may be used with success. The practice adopted by the author in such cases is a combination of rest and of excessive feeding, in conjunction with passive exercise, and a steady use of massage and electricity.

Walsh's Physicians Handy Ledger, a Companion to Walsh's Physician's Combined Call-Book and Tablet, Published by Ralph Walsh, M. D., 326 6th street north-west Washington, D. C.

Both of these books are well adapted to the wants of the Country as well as the City physician. The "Ledger" combines all the advantages of a "ledger" and "daybook." It is so arranged that the Surgical, Obstetrical, and Miscellaneous charges, as well as the number of visits made during the entire year, and on each day of the year, can be recorded on the opposing pages; and thus the charges, in any case, for an entire year, or for any part of a year, can be ascertained by simply referring to the name and page.

The Ledger contains 300 pages and accommodates 300 names, printed on good paper, and is indexed, and bound in a convenient form and substantial manner.

The Call-Book and Tablet has been noticed before in this journal. It contains 22 pages of printed matter, with blank pages suitably ruled, and interleaved, for any number of patients and may be used for two or more years. The printed matter contains much that will be found useful to the young physician and also to the busy practitioner at the bed-side; a table of poisons and their antidotes; useful formulæ; diagnostic examination of the urine; directions for making post-mortem examinations, etc., etc. The shape of this call-book is convenient for the pocket, and is not too heavy.

After using both of Walsh's books—the Ledger and Call-Book, we can recommend them.

Report of the Board of Health of the City of Nashville, for the year ending July 4th, 1877.

This report opens with a chapter, of nearly one-hundred pages, by J. Berrien Lindsley, M. D., Health Officer or Sanitary Referee in Nashville, during 1875 and 1876. Dr. Lindsley fully and ably discusses the various causes of disease common in every city, and exhibits, in a clear and forcible manner, the influence of impure water, foul air, dampness, filth, etc , etc., as causes of sickness. The facts and criticisms which Dr. Lindsley presents, although primarily of merely local interest, are equally applicable to Cincinnati and other cities, as well as smaller towns throughout the United States, as showing the positive disregard of sanitary conditions. He shows that good health, and human life have *a money value.*

Under the head of *Small-Pox*, Dr. Lindsley exhibits the influence and reliability of vaccination. He remarks that "during the last three or four years small-pox has been virulent in neighboring cities all around us. That Nashville has been *so entirely clear* of it, must be attributed to the timely action of its Health Authorities." He then goes on to show how thoroughly vaccination has been practiced among both whites and blacks. As showing how preventive medicine grapples with scarlet fever. Dr. Lindsley copies at length a document issued by the Michigan State Board of Health, on "Restriction and Prevention of Scarlet Fever;" a document which should be sent broadcast throughout every state.

This Report contains in addition to Dr. Lindsley's:

II. A Report on the Topography of Nashville, by Wilber F. Foster, City Engineer.

III. On the Geology of Nashville, by J. M. Safford, Geologist of Tennessee.

IV. On the Water Supply, by Nathaniel Lupton, Professor of Chemistry in Vanderbilt University.

V. On the Climate of Nashville, by H. C. Ford, M. D., U. S. Signal Service Observer.

VI. Brief Annals of Nashville, by Anson Nelson, Secretary of the Tennessee Historical Society.

Each of these reports are worthy of special mention, which is omitted for want of time and space; they are bound together in one volume making a handsome book of 230 pages. The book contains an elegant topographical map of Nashville.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. von Ziemssen, Profesor of Clinical Medicine at Munich, Bavaria. Vol. xvi. Diseases of the Locomotive Apparatus, and General Anomalies of Nutrition. By Prof. H. Senator of Berlin; Prof. E. Seitz, of Giessen; Prof. H. Immerman, of Basel; and Dr. Birch-Hirschfield, of Dresden. Albert H. Buck, M. D., New York, Editor of American Edition. New York: William Wood & Co.

The first section of this volume treats of Diseases of the Locomotive Apparatus and is by Prof. Senator. Under this head is classed all disorders affecting the organs of locomotion not due to wounds or external injuries; the affection most commonly met with under this head is rheumatism.

The authors conclusions in regard to treatment will certainly harmonize with the views held by most practitioners, viz: "That no one plan of treatment is capable of arresting rheum-arthritis; that none among them has been certainly proved even to exert an influence on the chief symptom of the disease—the joint affection. The most that can be said of certain remedies is that they tend to shorten the malady and to lessen the tendency to cardiac complication." As the danger to life is dependent on those complications, the methodic administration of alkalies, is directed in every case, the sodic salts receiving the preference, in connection with colchicum. The succeeding chapter on Rickets (Rachitis) is also by Prof. Senator, which is followed by the section on general disorders of nutrition, by Prof. Immerman. Under this head is classified, Anæmia, Chlorosis, Progressive Pernicious Anæmia and Corpulence, with the numerous sequalæ of those affections.

The section on Scrofulosis, and Affections of the Lymphatic glands in general, is by Prof. Birch-Hirschfield.

Scrofulosis is designated by the author to be "a constitutional anomaly which shows itself by changes partly of an inflammatory, partly of a hyperplastic nature, excited in the tissues by a comparatively slight noxious influence—changes which are endowed with insufficient recuperative power, and are therefore prone to lapse into regressive metamorphosis, and following thereupon, into local tuberculosis."

The last chapter of the volume is by Senator, and devoted to Diabetes Mellitus and Insipidus.

The Practitioner's Reference Book. Adapted to the use of the Physician, the Pharmacist, and the Student. By Richard J. Dunglison, M. D., Philadelphia: Lindsay and Blakiston. For sale by Robert Clarke & Co. Price $3.50.

The author offers The Hippocratic oath as an introduction to his work. The first chapter is taken up with a tabulation of weights and measures; the relation of weights and measures to those of the United States Pharmacopæia; the solubility of medicines in water, alcohol, ether, glycerine, etc. Abbreviations in common use and comparison of thermometric scales.

The next chapter, gives some excellent rules for use of the practitioner, as also a very convenient order for observation in making an examination of a patient. Doses of medicine and method of administering. Baths and how to medicate them. Rules for management of infants. Obstetric Memoranda. Rules for clinical examination of the urine. Poisons, their nature and treatment. Directions for restoring the apparently drowned. Disinfectants and their practical application. Directions for preventing the spread of infectious diseases. Dietetic rules and precepts. How to conduct a Post-Mortem examination, etc. It would be a task of no mean dimensions to undertake to gather a greater amount of valuable information in the small compass occupied by the author in this handy-book of reference.

How to Use the Ophthalmoscope. Being elementary instructions in Ophthalmoscopy. Arranged for the use of students. With thirty-five illustrations. By Edgar A. Browne. Surgeon to the Liverpool Eye and Ear Infirmary; and to the Dispensary for Skin Diseases; etc. Philadelphia: Henry C. Lea. For sale by Robert Clarke & Co. Price $1.00.

In these days one of the most essential things for both medical students and physicians to learn is, the use of various instruments of precision, that have been invented for our assistance in making an accurate diagnosis in cases of disease. One of the most useful of these inventions is the Ophthalmoscope, an instrument without which the ophthalmologist would be unable to successfully practice his specialty. This little volume gives a simple account of the mode in which the student should begin the study of diseases of the eye by means of the Ophthalmoscope, and is admirably adapted to this purpose.

In the Notice of Surgical Observations with Cases and Operations. By J. Mason Warren, M. D. A. Williams & Co., of Boston should have been announced as the publishers instead of Ticknor & Fields.

A Treatise on Gonorrhœa aud Syphilis. By Silas Durkee, M. D. Consulting Surgeon of the Boston City Hospital, Fellow of the Massachusetts Medical Society, etc. Sixth Edition, with eight colored illustrations. Philadelphia: Lindsay and Blakiston. For Sale By Robert Clarke & Co. Price $3.50.

We are glad to note that this the first treatise on Venereal Diseases by an American physician still retains its popularity with the profession, holding its place as a reliable text book. The work is eminently practical, very little space being given to speculative theories, the author being content to express views that are in harmony with and maintained by syphilographers of the largest experience. This work should be revised.

Materia Medica. For the use of students. By John B. Biddle, M. D., Professor of Materia Medica and General Therapeutics in the Jefferson Medical College, etc. Eighth Edition. Revised and enlarged with numerous illustrations. Philadelphia: Lindsay and Blakiston. For sale by Robert Clarke & Co. Price $4 00

A text book that has passed through seven editions, needs neither comment or criticism on the part of the reviewer.

The author has incorporated in this edition the important recent contributions, to the various departments of pharmacology. Although the last edition was issued but a little more than a year since, the work has been thoroughly revised.

Lectures on Practical Surgery. By H. H. Toland, M, D., Professor of the Principles and Practice of Surgery in the medical department of the University of California. Illustrated. Philadelphia: Lindsay and Blakiston. For Sale by Robert Clarke & Co. Price $4 50

The author announces in the preface to this work, that on account of his numerous engagements he had not time to write a book, but employed a stenographer to take down his oral lectures before the class. This plan of manufacturing medical literature has certainly a charm and freshness about it, that is generally wanting in the more accurate labors of the student of science.

The volume under consideration is valuable, as it illustrates the teaching and practice of one of the most eminent surgeons on the Pacific Coast. In reading the work we are impressed with the practical character and usually good judgment of the author. Although in some instances he differs widely from the practice of other accepted authorities on the subject treated of, for instance, he advises against the operation of resection of the hip-joint in cases of morbus coxarius, and says he would not under ordinary circumstances perform the operation. The application of the starch bandage in recent cases of fracture is positively condemned, and that a physician cannot be called a surgeon, who will make such an application. This is certainly contrary to the teaching and practice of other reputable men in the profession.

We regret to find the index very meagre and incomplete, which greatly detracts from its value as a book for reference.

Sanitary Condition of Portland. By Fredrick Henry Gerrish, M. D.

An exceedingly interesting little pamphlet relative to the Sanitary Condition of Portland, Maine, containing health statistics and a *resume* of the prevalent diseases of the northeastern section of the United States. Such publications are of permanent value, as they furnish the basis from which the statistician of the future must draw his data. Dr. Gerrish is to be congratulated on the happy manner in which he has accomplished his task, and deserves the thanks of all American sanitarians. T. C. M.

Hospitals their History, Organization and Construction. By W. Gill Wylie.

In 1875, the Boyslton Medical Committee, appointed by the President of Harvard College, offered a prize for the best written essay on "Civil Hospital Construction;" the dissertation to be transmitted to Dr. Jackson, of Boston, by April 1876. At the time appointed, a number of essays were examined and the prize, $300. was awarded to W. Gill Wylie, of New York. The work of Dr. Wylie was considered to be of such value that it has been republished by Appleton & Co. The book is divided into eleven chapters. Chapter first treats of the Origin of Hospitals, and is exceedingly interesting as a historical statement. Chapter second, discusses the Relation of Hospitals to Pauperism. Chapter third, Hospital Management, contains many points of value to managers of Asylums. Chapter fourth, on Construction of Civil Hospitals is well worthy of perusal by architects and builders; the same may be said of chapter fifth, which fully discusses Warming and Ventilation. The remaining chapters pertain to matters regarding the management of charitable institutions. The want of a work of this kind has long been felt, not only by the profession, but the general public. Many small towns throughout the United States, ambitious of rivalling the larger cities, are now founding hospitals for the relief of the sick and afflicted, and as this work is especially suited for the instruction of Boards of Hospital Trustees, Superintendents, Architects, Builders and Mechanics, it should command a large sale. Dr. Wylie deserves great credit for his work. Appleton & Co., the publishers, have, with their good taste, presented an elegantly bound and printed edition of the book. T. C. M.

Physician's Case Record Ledger. By George Walton, M. D.

Dr. Walton is well known to the profession not only as the author of several valuable medical publications, but also as the introducer of an improved system of medical book-keeping, So those who, amid the drudgeries of a practice, have little or no time to indulge in the intricate mysteries of accounts, as exemplified in the case of the mercantile community, this office ledger, must prove invaluable. Simple and at the same time accurate, it not only permits a physician to keep correct accounts, but also enables him to read at a first glance the clinical history of his patient. No physician can afford to do without it. Robert Clarke & Co., of Cincinnati are the publishers, and deserve much credit for the neat style in which the Ledger is printed and bound. T. C. M.

Physician's Case Record. By the same author, is valuable to those persons who desire to keep a memorandum of prescriptions, and short daily clinical histories of cases. T. C. M.

National Repository; A Christian Magazine. Rev. D. Curry, D. D., Editor; Hitchcock & Walden, Publishers, Cincinnati, Chicago, St. Louis. Begins January, 1878.

"The scope and character of this magazine is that of a first-class religious and literary monthly, of the highest character attainable, and pervaded, both in its general and religious articles, by a thoroughly Christian spirit."

A sufficient number of the best writers for the press are employed to furnish all the variety in the several departments which their scope and importance require to make them rich and instructive.

The Editorial Department is a feature of the magazine. Rev. Dr. Curry, both experienced and successful as an editor, brings to his duties the purpose of giving his whole strength to the work before him.

Each number contains one or more articles illustrated with *Wood Engravings*, in the best style of this sort, adding beauty and value in the pages.

The twelve numbers for the year will contain 1,152 pages of reading-matter, which published in book form, would make not less than fifteen volumes, worth $1.50 each, and will comprise a variety that will be more interesting and valuable to the general reader than could be procured in books for many times the yearly price of the magazine.

We earnestly request you to take the *National Repository* for 1878—to give it *one year's trial*, and thereby determine for yourselves whether it is worthy of a place in the Christian home.

All Methodist Pastors are authorized agents.

Golden Hours for 1878. A first-class Magazine for Boys and Girls. H. V. Osborne, Managing editor. Hitchcock and Walden, Publishers. Only $1.60 a year post-paid.

Dickens' Little Folks: Nothing has given the writings of CHARLES DICKENS so strong a hold upon the hearts of parents as the well-known excellence of his portrayal of children and their interests. These delineations having received the approval of readers of mature age, it seemed a worthy effort to make the young also participants in the enjoyment of these classifications.

With this view, the different child characters have been detached from the large mass of matter with which they were originally connected, and presented in the author's own language, to a new class of readers, to whom the little volumes will, we doubt not, be as attractive as the larger originals have so long proven to the general public.

A series of twelve volumes has been prepared, presenting, among others, the following characters: "LITTLE PAUL," from Dombey & Son; "SMIKE," from Nicholas Nickleby; "LITTLE NELL," from The Old Curiosity Shop; "THE CHILD WIFE," from David Copperfield, &c.,

A new edition of the first volumes of this series, "LITTLE PAUL,', from Dombey & Son, has just been issued, illustrated by Darley, and attractively bound. The other volumes will follow at short intervals.

For sale by all booksellers, or sent post-paid for $1.00 by the Publisher, JOHN R. ANDERSON, Hartford, Conn.

Lectures on Dermatology: Dr. Bulkley will give a course of lectures on Diseases of the Skin at Demilt Dispensary Cor. 2nd Avenue & 23rd Street on Saturday afternoons from 2 to 3 o'clock.

The lectures will be Didactic and Clinical in character, going over the whole subject and illustrated by Colored Plates, Photographs, Models, the Blackboard, and abundant Clinical material. The Pathology, Differential Diagnosis, and treatment of Diseases of the Skin will be especially considered.

The lectures will be free to Medical Students; Practioners of Medicine will be charged $15 for the course of 24 lectures.

Abundant provisions will be made for accommodating all who wish to attend. Course to begin December 1, 1877.